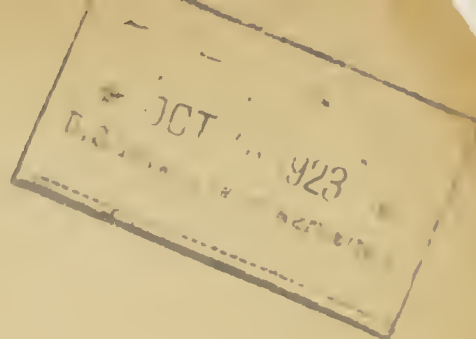


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A CLASSIFIED LIST OF PROJECTS
CARRIED ON BY
THE AGRICULTURAL EXPERIMENT STATIONS
1922-23

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A CLASSIFIED LIST OF PROJECTS

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THE AGRICULTURAL EXPERIMENT STATIONS

1922-23

UNITED STATES DEPARTMENT OF AGRICULTURE
STATES RELATIONS SERVICE
OFFICE OF EXPERIMENT STATIONS

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A CLASSIFIED LIST OF PROJECTS CARRIED ON BY THE AGRICULTURAL
EXPERIMENT STATIONS, 1922-23.

The total number of projects carried on by the State experiment stations in 1922-23 was 5,156, an average of about 103 per station, a slight increase over last year. Of these, 490 projects were conducted under the Adams fund, a slight decrease from last year, averaging a little over 9 per station. Of the total 5,156 projects, 56 which are purely administrative, control, or regulatory, should be subtracted, leaving 5,100 devoted to research and experimentation. To these may be added 140 projects carried on by the insular stations in Alaska, Guam, Hawaii, Porto Rico, and the Virgin Islands, giving a total of 5,240.

There is an increase in the total number of projects, over last year, of 385. This probably does not mean wholly an extension of the work, but results partly from the fact that the stations are bringing their activities into more specific lines. In other words, they are splitting up their more generalized projects into those of a more specific nature. Fifteen stations report the work of the branch stations in project form, to the number of 713, which are included in the total, indicating that the work there, as well as at the central station, is being put on a more definite project basis.

Owing to the fact that many of the projects involve two or more subjects of inquiry, it is often necessary to divide them in a classified list, and many require classification under two or more heads. In this classified list, therefore, the 5,240 projects are expanded to 5,755 entries.

An analysis of the projects shows but little relative change from last
93-CES.

year. Field crops leads with a total of 1,611 projects, corn having 183, the largest number under any head in the list, followed by potatoes with 153 and wheat with 143. The second largest group in the list is Horticulture with 904 projects, under which apples lead with 118 projects, fruits--general with 61 and vegetables--general with 58 being the next largest subjects. Plant pathology comes third in the list with a total of 452 projects, the largest subheads being potato diseases with 51, cereal diseases--general with 34, and apple diseases with 32 projects. Economic entomology follows with a total of 412 projects, under which bees include 45, insecticides 39, and miscellaneous 20. The next largest division is Soils with 310 projects, including soil fertility 46, soil flora 38, and soil types 29. The remaining subjects in the order of their number of projects are Veterinary medicine with 194, Fertilizers 193, Rural economics 186, Swine 180, Dairy cattle 176, Poultry 170, Rural engineering 162, Botany 133, Feeding stuffs and animal nutrition 111, Genetics 105, Dairy products 93, Beef cattle 88, Forestry 82, Chemistry 76, Sheep 74, Foods and human nutrition 50, Economic zoology 30, Seeds 28, Bacteriology 22, Weeds 19, Animal husbandry--general 15, Horses and mules 14, Meteorology 11, and Agrotechny 10.

The largest increases over last year are in Horticulture with 96 more projects and Fertilizers with an increase of 52 projects. There is a little falling off from last year in the number of projects under Foods and human nutrition, Feeding stuffs and animal nutrition, Chemistry, and Bacteriology.

E. R. FLINT,

Scientific and Administrative Assistant,
Office of Experiment Stations.

Washington, D. C., August 15, 1923.

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Variations in analytical weighings due to differences in temperature.
N. Y. Cornell.

Gasometric analysis of carbonates. Mich.

Analysis of the agricultural soils and limestone of the State. Ky.

Chemical investigations of acid soils.--To determine why some acid soils of Oregon respond to lime and others do not. Oreg.

Chemical study of Gallatin Valley soils. Mont.

The chemical analysis of soils from the experiment farm at Sheridan.--To find the per cent of all the soil constituents at three depths (surface, intermediate subsoil, and deep subsoil) at five year intervals. (In cooperation with the Bureau of Plant Industry, U. S. D. A.). Wyo.

Chemical and bacteriological studies of peat. N.J.

Chemical study of Gallatin Valley ground water. Mont.

The chemical and physico-chemical properties of plant tissue fluids.
Minn.

Chemistry and metabolism of plants by varying degrees of vegetation and reproduction. N.H.

Microscopical and chemical study of proximate constituents of plants, their metabolism, and translocation, with especial reference to influence of plant food ingredients. R.I..

The biochemistry of disease resistance in plants. Minn.

The chemical analysis of forage crops and feeding stuffs. Wyo.

Influence of climatic factors on the chemical composition of plants. Wis.

Chemical composition of forage crops as affected by various factors. Iowa.

Determining the mineral constituents of forage crops. Mass.

The constitution, metabolism, and physiological effect of certain phosphorus bodies found in feeding stuffs. N.Y. State.

Analysis of corn for selection of high and low protein strains. Minn.

Changes taking place in corn and cornmeal when stored under different conditions. Ky.

Chemical studies, various. (Cont.)

Chemical changes which take place in cottonseed during growth, and factors affecting same. Okla.

Biochemical changes in cottonseed in storage. Ark.

A chemical study of legumes growing in western Oregon. Oreg.

Chemical composition of Hubam (annual white sweet clover). Iowa.

Chemical study of the grain sorghums. Okla.

The composition and properties of silage prepared from the grain sorghum. Okla.

Nutrients in forage crops. Chemical contents of forage crops, particularly hydrocyanic acid in Sudan grass. Kans.

Chemical composition of root crops. Minn.

A chemical study of the velvet bean.--To determine in what respect the velvet bean is deficient in nutritive properties or is otherwise injurious. Ala.

Chemical constituents of wheat. The relation of chemical composition to variation in commercial value of wheat of different classes and quality. N. Dak.

Tests (chemical) of wheat from farm crops section. Minn.

A study of the chemical composition of fruits during development under varying conditions of treatment. Del.

Study of the factors that induce jellying of fruits. Del.

Nature and properties of the pectins. N. Y. Cornell.

Investigations of the chemical composition of apples in relation to apple breeding. Iowa.

Preparation of inulin and fructose from artichoke tubers. Minn.

Pigments of the grape. N. Y. State.

Determination of the effect of varying amounts of potash on the composition of oranges. Fla.

A study of the proteins of the pecan.--To find the per cents of proteins extracted by solvents commonly used. Okla.

Chemical studies of pollen. Minn.

Composition of corn pollen. N. Y. State.

Chemical studies, various. (Cont.)

A study of the protein of maple seed and the protein and phosphorus compounds of pollen. N.Y. State.

Nature and inheritance of chemical constituents of certain vegetable oils. Wis.

A study of the vegetable proteins, especially those of the living cell. Conn. State.

A study of the preparation and properties of pure vegetable protein. Mich.

The isolation and study of pure proteins from forage crops. (Work on alfalfa seed, alfalfa hay, and clover hay.) Oreg.

The determination and significance of the amino-acid resulting from the hydrolysis of the proteins contained in seeds, grains, grasses, feeds, and foods. Ky.

Protein investigations.--Humin formation with special reference to the structure of the compound resulting from the interaction of tryptophane and an aldehyde. Minn.

Studies of the availability of organic nitrogenous substances. Mich.

The properties of casein. N.Y. State.

Gelatin tests of practical value. Okla.

The biochemistry of carotinoid pigments in animals. Minn.

Study of the chemistry of butter fat and the effect of food in modifying its chemical and physical character. Mass.

The reaction of feces in man and animals. Mich.

Standardization of biological stains. (In cooperation with the National Research Council.) N. Y. State.

The effect of pressure on enzymes. W. Va.

Vinegar investigations. Iowa.

Chemical investigation of spray materials. Oreg.

Study of the chemical of arsenical insecticides. Mass.

Miscellaneous chemical observations. Mont.

Methods.

The application to food problems of apparatus which has heretofore been used for the most part in theoretical chemical investigations, such as apparatus for H-ion determinations, osmotic pressure and so forth. N.Y. Cornell.

The development of the calcium acetate method of determining so-called soil acidity. The development of a simple means of determining soil organic matter content; the nature of so-called soil acidity in Vermont soils. Vt.

Methods of determining boron when applied to mixed fertilizers and working out modifications that would be adapted to these materials. Me.

A new method for the analysis of dry lime sulphur mixtures. Mass.

Methods for nicotin determination. Conn. State.

A study of the methods of determining crude fiber. Conn. State.

A comparison of the Majonnier method and the Babcock method for determining the percentage of fat in different dairy products. N. Y. Cornell.

Investigations to devise a more satisfactory method for the determination of lactose in milk. Ill.

The preparation and use of neutral ammonium citrate solution. Mich.

Investigation of proposed official methods of analysis. Minn.

Poisonous plants. (See also Botany and Veterinary Medicine.)

Chemical study of the toxic principles of Aconitum columbianum. Wyo.

Preliminary study of the chemical and physiological nature of a suspected poison in Arenaria hookeri. Wyo.

Chemical examination of Delphinium bicolor. Wyo.

Chemical examination of Delphinium cucullatum. Wyo.

Chemical study of the toxic principles of Delphinium menziesii. Wyo.

Chemical study of the toxic principles of the seeds and fruits of Lupinus argenteus. Wyo.

Active principle of the whorled milkweed. Colo.

METEOROLOGY.

Miscellaneous.

Climatology. Ariz.

Meteorology. Colo.

Meteorological observations. Mont., (Hettinger Substation) N. Dak.

Record of weather observations. Minn.

Complete meteorological records, for both the campus and on the muskeg bog.
(North Central Branch Station, Grand Rapids). Minn.

Studies in evaporation. N. Y. Cornell.

The quantities, forms, and sources of nitrogen and sulphur contained in the
rainfall at Ithaca. N. Y. Cornell.

Weather observations with special attention to frost protection. Mass.

Further studies on frost occurrence and the possible method of preventing
damage to crops. Mich.

The relation of the climate of New York to the agricultural industries of
the State. N.Y. Cornell.

BACTERIOLOGY.

(See also Soil flora; Field Crops - legumes, inoculation of; and Dairy
bacteriology.)

Fermentation.

Studies of pentose-fermenting bacteria. Wis.

Microorganisms in the fermentation of silage. Iowa.

Acetic acid bacteria. Iowa.

Studies of vinegar fermentation. Mich.

Vinegar culture work. Wash.

Vinegar studies. Colo.

Food and drinking water bacteria.

Microbiology of the food of man and domestic animals. Mich.

Bacteriological investigations on drinking water supplies.--To improve the water supplies of rural districts. Mich.

Nodule bacteria of legumes.

Studies of nodule forming bacteria. Mich.

Nodule organism of alfalfa and its relation to those of sweet and red clover. Ky.

Factors influencing the growth and performance of nodule and other nitrogen-fixing bacteria. Ill.

Studies on the longevity of Bacillus radicicola in the soil. After the crop is removed how long do the bacteria live in the soil and retain the ability to inoculate the next crops? Mo.

Pathogenic bacteria. (See also various bacterial diseases under Veterinary Medicine.)

Studies of Bacillus botulinus. Wis.

Botulism poisoning in man. Ill.

Studies of the Coccaceae. N. Y. State.

To study factors that may control the metabolism of bovine tubercle bacillus. Wash.

Miscellaneous.

Longevity of Theilavia basicola in soils. Ky.

Study of certain groups of non-spore forming bacteria. N. Y. Cornell.

The isolation and study of nitrifying bacteria. Idaho.

Studies of bacteriological technic. N. Y. State.

Influence of media upon bacterial growth. N. Y. Cornell.

Chemical and bacteriological studies of peat. N. J.

BOTANY.

Anatomical studies.

Further work on the histology of the phloem in certain woody angiosperms.
N. Y. Cornell.

The morphology of the flowers of Casuarina. N. Y. Cornell.

Stelar anatomy of the Centrospermae. N. Y. Cornell.

Flower morphology and anatomy in the Geraniales. N. Y. Cornell.

The anatomy and morphology of the Magnoliaceae and related families. N.Y.
Cornell.

Anatomy of flowers of the Ranales. N. Y. Cornell.

Anatomy of the flowers of the Salicaceae. N. Y. Cornell.

The anatomy of Saururus. N. Y. Cornell.

Fungi.

Fungi of Arkansas. Ark.

Study of plant pathogenes from the point of view of their biological characteristics. The determination of biological relations in the fungi imperfecti. Mich.

Heterothallism in fungi, with special reference to the ascomycetes; cultural and morphological studies. N. Y. Cornell.

Heterothallism in fungi, with special reference to basidiomycetes; cultural and morphological studies. N.Y. Cornell.

Life histories and classification of the fungus genus Mycosphaerella. Md.

Morphological and taxonomic studies of Pyrenomycetes. At present chiefly concerned with the genus Nitschkia and its relatives. N. Y. Cornell.

Tolerance of Saccharomyces ellipsoidens for acetic acid. Calif.

Studies on Botrytis and Sclerotinia diseases of plants. Including Botrytis diseases of peony, Botrytis blight of golden seal, Sclerotinia minor stem rot. N. Y. Cornell.

General taxonomic study of forms in the genera Botrytis and Sclerotinia, especially with respect to the interrelationship of these forms, host ranges and biological strains. N.Y. Cornell.

Fungi. (Cont.)

Sexuality in the genera *Botrytis* and *Sclerotinia*, and the occurrence of dioecious fruit. N. Y. Cornell.

A complete study of *Sclerotinia libertiana* (Fuckel) as a plant parasite. N. Y. Cornell.

Investigations into the life history and parasitism of *Sclerotium rolfsii*. Ga.

Biology of *Sclerotinia* spp. Minn.

The relation of microspores, "Spermatia" to life history and propagation of certain ascomycetes. Ga.

Relation of parasitic fungi to their host plants. Va.

Biologic specialization of parasitic fungi in relation to disease resistance in plants. Susceptibility of several varieties of beans to the different strains of anthracnose and rust of the bean. Colo.

Effect of solutions of various Ph values upon the germination of wheat and oat smut spores and of the effect of various dust fungicides upon the control of oat smut and bunt. N.Y. Cornell.

Plant introduction.

Plant introduction. Tex.

Foreign plant introductions. Pa.

Test of new and imported species of plants, including teff grass, kikuyu grass, Sudan grass, teosinte, pearl millet, etc. Acclimatization tests. (In cooperation with the Office of Foreign Seed and Plant Introduction, U.S.D.A.) Ga.

Seed and plant accession. Trying out of new and introduced crops, and perfecting those of value to California conditions. Calif.

Tests with imported grasses and forage plants. S.U.

Introduction of exotic trees. The securing of trees that will succeed under adverse soil and moisture conditions, in general, on sand dunes. Mich.

Plant nutrition. (See also Fertilizers.)

Studies in the nutrition of some green algae in pure culture. N.Y. Cornell.

Length of day and its relation to the fertilizer requirements of horticultural plants. Wis.

Plant nutrition. (Cont.)

The growth of plants in artificial light and the distribution of carbohydrates in relation to light intensity. Minn.

Light intensity as influencing seed development and their subsequent growth under normal light conditions. Mass.

A study of light in its effects upon the tissues of certain horticultural plants, with special reference to reproduction. Ohio.

A study of the light requirements of garden and field crops. Mass.

Effect of shade on fruiting habits and vegetative development of some horticultural plants. Md.

Study of the effect of ultra violet light on plant growth. Mass.

Studies of the temperature of leaves as influenced by sunlight and transpiration. N. Y. Cornell.

Effect of low temperatures on plants. Minn.

The influence of H-ion concentration on the injury of plant tissue exposed to low temperatures. N. Y. Cornell.

The relation of H-ion concentration to the growth of plants. Mo.

Inhibition and polarity in plants as correlated with osmotic concentration of the tissues. N. Y. Cornell.

Study with peaches on change of permeability and its relation to availability. Del.

The translocation of the mineral matter in plants. Ky.

Tissues concerned in the upward transfer of foods and nutrients in plants, and the mechanism and factors affecting this movement. N. Y. Cornell.

Are the nutrients and water absorbed by roots on one side of a tree readily translocated to branches on the other side of the tree? N. Y. Cornell.

Nutrition and plant response of vegetables. Mo.

Plant metabolism and growth. Minn.

A study of the metabolism of roots.--To determine whether any materials in addition to the essential mineral salts, water, free oxygen, and carbohydrates are required for the growth and development of the root. Mo.

Effects of various factors, especially nutrients and water supply, on root growth, both absolute growth and growth relative to that of tops. N. Y. Cornell.

Plant nutrition. (Cont.)

The controlling influence of carbon dioxide on metabolism in storage organs
[with potatoes]. Md.

Relation of carbohydrates to chlorosis. N. Y. Cornell.

The carbohydrate metabolism of plants. Calif.

Chemistry and metabolism of plants by varying degrees of vegetation and
reproduction. N.H.

Metabolism studies with sweet corn. Md.

Microscopical and chemical study of proximate constituents of plants, their
metabolism and translocation, with especial reference to influence of plant
food ingredients. R. I.

Physiological effects of available plant food upon length of the crop growing
season. A systematic and thorough study of certain physiological effects
of available plant food upon germination, early development, development
of vegetative parts, yields, development of seed, etc., with special refer-
ence to the effect upon length of growing season. Vt.

Study of fundamental processes relative to the storage of sugars and other
carbohydrates in the wood and inner bark of the maple, oak, elm, birch,
apple, beech, ash, chestnut, etc. Vt.

Function of different sugars in plant metabolism. N.Y. Cornell.

Catalase activity as an indicator of the nutritional condition of fruit tree
tissues. N.Y. Cornell.

To determine the best salt preparations for wheat or cowpeas in water cul-
tures and sand cultures. Mich.

Study of the relation of the concentration of nutrient solutions to the
growth of the barley plant in sand and water cultures. The relation of
solution to absorption and forms of combination of important elements. Calif.

Absorption of solutes by plants, with especial reference to balanced solutions --
To determine a rational system for providing the proper salt requirement
for agricultural plants from the point of view of proper ratios or balanced
salt action. Mich.

Study by means of water and pot culture, of the physiological effect and
relationship of nutrient elements upon plant growth. R.I.

Investigation of the food requirements of plants growing in sand or in soil
cultures. Md.

Plant nutrition. (Cont.)

The salt requirements of representative agricultural plants. N.J.

Study of ammonium sulphate in relation to plant growth. N.J.

Utilization of plant food nitrogen in the presence of phosphoric acid and potash, including utilization of nitrogen in mixture of nitrogenous materials and study of factors affecting the utilization of nitrogen and ammonium sulphate. N.J.

Functions of nitrogen, potash, and phosphoric acid in the production of the peach. Del.

Study of plants in relation to their comparative requirements for lime and magnesia and physiological or other reasons for variation therein. R.I.

To determine the effect of phosphorus in different forms on the growth of plants and the effect of sulphur, in combination with calcium (gypsum, calcium sulphate) and as pure sulphur, on the growth of plants and its effect on the availability of phosphorus in different forms. S.Dak.

A study of the sulphur requirement of crops on Kentucky soils. Ky.

Function of sulphur as a plant food. Wash.

Influence of form and amount of sulphur on growth and development of seed and of sulphur-loving plants. Wis.

The relation of sulphur and sulphur compounds to cell structure. Md.

Magnesium and sulphur nutrition of plants.--To determine the influence of sulphur in soil on the production of protein in highly nitrogenous field crops and the effect of magnesium in the soil on fat production in oil-bearing plants, such as peanuts, soy beans, and cotton. Ark.

Studies on the nutrition of plants as affected by nitrogen and sulphur and by salts. Calif.

Study of certain fertilizers in relation to production, particularly a study of phosphorus and sulphur in relation to flower production.--To determine the amount that should be applied to the soil and the conditions affecting its use by growing plants. Ill.

Occurrence, distribution, and effect of manganese in plants. Ky.

Availability and efficiency of various soluble and insoluble iron compounds in relation to plant production. N.J.

Influence of silicates on plants. Ohio.

Relation of chlorin to plant growth. Wis.

Plant nutrition. (Cont.)

Water requirements of crops as related to plant characters and environmental factors. Nebr.

The physiological effect on life processes of certain selected plants when growing under deficient or improper nutritive conditions. Mich.

Plant nutrition and its relations to parasitism involving a study of the causes and relationship of attack and mode or causes of resistance to attack of parasitic fungi in flax, cereals, and associated crops. N.Dak.

Secretion of enzymes by fungi and influence of carbohydrates on enzym production. N.Y. Cornell.

Relation of enzymes to yeast activity. Wis.

Reactions of enzymes to solutions within the plant. Del.

Enzymatic activity as a limiting factor in production. Del.

Investigation on respiration enzymes.--To gain information on the processes concerned in the reduction of nitrates within the plant to amino compounds. Minn.

Public service work of the division of plant nutrition, consisting mostly of soil and water examinations. Calif.

Nutrition of the tomato. Studies intended to throw light upon conditions within the plant, correlated with certain external treatments and the response of the plants to those treatments. At present confined to nitrogen nutrition. N.Y. Cornell.

Effect of straw on plants. N.Y. State.

Poisonous plants. (See also Chemistry and Veterinary Medicine.)

Poison plants of our grazing ranges. Ariz.

Poisonous range plants, including Tetradymia glabrata, Atriplex canescens, A. confertifolia, Halerpestes cymbalaria, Artemesia spinescens, and four species of lupines. Range management in relation to poisonous range plants. Nev.

Microscopy of stock poisoning plants; (a) Histological studies of poisonous plants in Colorado, (b) identification of the plant causing the death of an animal from its stomach contents. Colo.

Vegetable poisons of the range. Wyo.

Loco eradication. Mont.

Systematic botany.

Mushrooms and toadstools. N.Y. State.

A study of the slime molds of the Cayuga Lake basin. N.Y. Cornell.

A survey of the wild mushrooms occurring in Minnesota. Minn.

Revision of the genus oxalis. A critical study of our eastern species of wood sorrel. N.Y. Cornell.

Study of the wild asters of the "Paniculatus" group. N.Y. Cornell.

Flora of the Cayuga Lake Basin. A critical taxonomic, geographic, and soil study of our native plants. N.Y. Cornell.

Survey of the flora of Newfoundland with preparation of a flora. N.Y. Cornell.

Miscellaneous.

Plant survey and herbarium. Kans.

Biological survey.--To make a survey of, and collect biological and economic data upon native and introduced plants and animals of the State, their distribution, habits, and agricultural importance. N. Dak.

Investigations on native plants, weeds, and fungi. Seed analyses and crop inspection. Investigation of the possible value of certain economic native plants. N. Dak.

Honey plants in Iowa. An investigation of the production of honey. Iowa.

To identify samples of weeds, poisonous plants, ornamentals, trees, wild plants, and mushrooms, and to diagnose plant diseases. Md.

A study of the correlations between certain physical characteristics of plants and their capacity to yield. S. Dak.

The conditions of parasitism. N.Y. Cornell.

A study of canaliculi in plant cells. N.Y. Cornell.

The effects of heating soils on germination and plant growth and the development of diseases in heated soils which have become reinoculated. Wis.

Relations of the morphology and physiology of plants to drought resistance. Kans.

The effect of fertilizers in plant variation. Md.

Miscellaneous. (Cont.)

Temperature as a factor in pollen tube growth. Minn.

Tolerance of crops for alkali. Idaho.

The tolerance of plants to acid conditions, as determined by the H-ion concentration. Del.

How Bordeaux Mixture stimulates plants. N. H.

Susceptibility, resistance, and so-called phagocytosis in orchid embryos. N.Y. Cornell.

An investigation of biological strains with the problem of bringing about a standardization of these products. N.Y. Cornell.

The effect of one plant on another.--Especially to ascertain whether good or bad influences are due to toxins or to bacteria. N. Y. State.

Relation of the wild plants to the soil in the Willis area, Montgomery Co., Texas. N. Y. Cornell.

Tree injury from abnormal food supplies. Mont.

Chemical studies of pollen. Minn.

A study of the protein of maple seed and the protein and phosphorus compounds of pollen. N. Y. State.

Factors influencing the oil content of seeds [Cotton]. S. C.

Fixation of free nitrogen by algae. N.Y. Cornell.

Investigation of the question: Is there a quantitative relationship between nitrate nitrogen and free nitrogen fixed in algae? N.Y. Cornell.

The utilization of Typha angustifolia and T. latifolia for heat insulation and other commercial products. N.Y. Cornell.

GENETICS.

General.--Analysis of inheritance.

The principles of heredity in certain plants. Calif.

Correlation of characters in grain. Colo.

Genetic studies of corn. N. Y. Cornell.

General.--Analysis of inheritance. (Cont.)

Mendelian studies with corn. N.Y. Cornell.

Genetic studies in corn, with special reference to linkage. N.Y. Cornell.

Fundamental study of inheritance in cotton. Tex.

The genotypic constitution of certain varieties of cotton.--To study the mode of inheritance and association of economic qualities in cotton. (In cooperation with the U. S. Department of Agriculture) N. C.

A study of heredity and development in the cotton plant. Miss.

A study of inheritance of black hulled white kafir. Oila.

Genetic studies in soy beans. Ill.

Mendelian studies with wheat and oats. N. Y. Cornell.

A study of the chromosome number of various pure lines of wheat. Minn.

Genetic investigations in the genus Crepis, the smooth hawksbeard. Calif.

Study of heredity in apple crosses. Me.

A study of Xenia in apples, and of the factors which influence the fertility and sterility of apple varieties. Ark.

Genetic studies with bramble fruits, especially raspberries. Determination of factors limiting culture of Rubus species in the South Atlantic States. N.C.

A study of inheritance in the tomato. Pa.

Genetic studies with Juglans regia, including methods of propagation. A study of eastern varieties and discoverable hybrids. N. C.

Studies of inheritance in Orthoptera. A study of the fundamental laws of inheritance in several species of the genus Paratettix. Kans.

The effect of temperature and moisture conditions on inheritance in Orthoptera. Kans.

Inheritance in Brahma and Hereford cattle. Tex.

Heredity studies with swine. Iowa.

Inheritance in pigeons. N. J.

Studies of inheritance in pigeons. Wis.

Breeding.

Minor breeding investigations. Calif.

Methods of selection breeding. Colo.

Line breeding vs. outcrossing. W. Va.

Minor investigations in plant breeding. Iowa.

A study of inbred strains of corn, to determine whether or not self-fertilization causes reduction of vigor after homozygosis is reached, and to study the inheritance of abnormalities with particular reference to sterility. Conn. State.

A study of the effect of inbreeding in smooth brome grass (Bromus inermis) and alfalfa (Medicago sativa). N. Dak.

Comparisons of pure line selection with hybridization as a method of improvement in wheat. Ohio.

Breeding for hardness in fruits. Minn.

Breeding work with apples.--For the purpose of studying the laws of inheritance in apples and of producing new types of fruit. Studies on self-sterility experiments on the mutual influence of stock and scion. Me.

Establishing a breed of sheep for winter lambing, and a study of inheritance of characters. Okla.

Studies on inbreeding with Rhode Island Red fowls. Effects of inbreeding on fowls. Wis.

Study of laws governing the breeding of domestic birds. R.I.

A genetic study of inbreeding in fowls (White Leghorns): (a) Production of homozygous strains for use in future experiments, (b) continued close inbreeding on twelve characteristics, including fecundity, fertility, hatchability, weight and shape of eggs, body size, growth rate, etc., (c) study of the inheritance of traits tested under (b). Conn. Storrs.

Relative influence of sire and dam on the offspring (with poultry). Ore.

Blue gray breeding. Iowa.

Studies of effects of inbreeding upon size, age of sexual maturity, litter size, vitality, etc., of guinea pigs. Kans.

Hybridization.

Hybridization of cereals. S. Dak.

Inheritance in a cross of Avena sterilis algeriensis and A. nuda inermis. Chio

The inheritance in crosses between Sudan grass and Johnson grass.--To determine the mode of inheritance of the root systems in crosses between Johnson grass and Sudan grass. Ca.

Sterility of hybrids of Nicotiana. Pa.

Hybridization of Rotundifolia grapes with other species.--To determine the various species with which Vitis rotundifolia will hybridize, to find methods of overcoming antipathy where it occurs, and to establish a scale of hybridization of V. rotundifolia with other species. N.C.

Study in the origin of species or the development and improvement by hybridization in the genera Viola and Rubus. Vt.

Hybridizing poultry. Reciprocally crossing Barred Plymouth Rocks with other breeds. Experiments bearing on the inheritance of linked characters. Me.

Inheritance of characters.

To determine in what degree different factors are inherited independently of each other in strains or races where these factors have always been inherited together. Ill.

Breeding experiments to determine the behavior in inheritance of certain unit-characters. Ky.

Investigation of inheritance of disease resistance in plants. Wis.

A study of heritable characteristics in pure lines of alfalfa. Ariz.

Inheritance in hardiness in alfalfa. To obtain data as to the genetics of hardiness in alfalfa and thereby to lay a foundation for future practical breeding operations. N. Dak.

Inheritance study in cereals. A study of the laws of inheritance with reference to specific characters. Wash.

A study of inheritance of characters in corn with particular regard to their linkage relations and locations of factors in the chromosomes. Conn. State.

Inheritance of characters. (Cont.)

The inheritance of prominent ear and stalk characters and their relation to yield, namely: (a) Shape of ear, (b) length of ear, (c) number of rows per ear, (d) filling of tip, (e) indentation of kernel, (f) height of ear on stalk, (g) height of plant, and (h) proportion of grain to cob. Ohio.

The morphology of the pericarp in maize, with relation to the behavior of certain inherited characters. N.Y. Cornell.

Inheritance of barrenness in corn. S.C.

Genetic analysis of maize, including: (a) The inheritance of Mendelian characters in maize, (b) the relative frequency of crossing over in microsporogenesis and megasporogenesis, (c) the occurrence and frequency of mutation in the factor of pericarp color in maize, and (d) competition among male gametes in maize. Mo.

A study of the inheritance of fruit characters in cotton. Ark.

Inheritance in oats.--To determine the factors controlling the inheritance of color, hull, and hulllessness by means of hybridization and segregation S. C.

Inheritance in grain sorghums. Tex.

A study of the transmission of complex characters, such as yield and quality, in cross of two widely grown strains of tobacco. Conn. State.

The genetics of dwarf wheats in Kota-Marquis hybrids.--To study methods of inheritance and to learn the economic importance, if any, in wheat, of the presence of the factor carrying dwarfness. N. D.

Inheritance of stem rust resistance of wheat. N. Dak.

Investigations in cereal breeding.--To determine the mode of inheritance of rust resistance in wheat and to produce rust resistant varieties. (In cooperation with the Office of Cereal Investigations, U.S.D.A.) Minn.

Inheritance of flower color and flower form in Phlox drummondii and of flower color in Marabialis jalapa. Pa.

Inheritance of alkaloidal content and other characters in *Datura*. Wis.

Nature and inheritance of chemical constituents of certain vegetable oils. Wis.

A study of the inheritance of characters in fruits. Minn.

Inheritance of characters in tree, vine, and bush fruits. N.Y. State.

Inheritance of characters. (Cont.)

A study of the manner of inheritance of the various economic characters in beans. Ariz.

Inheritance of color in Rotundifolia grapes.--To determine the laws governing inheritance of color in Vitis rotundifolia. N.C.

Inheritance of size of fruits in Rotundifolia grapes.--To determine the factors governing the size of berries in Vitis rotundifolia and method of transmission of the character. N.C.

Studies in the inheritance of sex in Rotundifolia grapes.--To establish the laws of transmission of sex applying to Vitis rotundifolia and to determine methods to be used in hybridization. N. C.

Inheritance of productivity of Rotundifolia grapes.--To establish standards of productivity for the most important varieties, to study the factors bearing upon productivity in order to determine methods to pursue in increasing productivity in Vitis rotundifolia and to watch for unusually productive vines. N.C.

The genetic composition of peaches. A genetic analysis of certain varieties to determine degree and manner of transmission of heritable characters. Mass.

Experimental analysis of the heredity factors determining milk and meat production in cattle. Wis.

The study of the inheritance of characters in dairy cattle in a cross-bred Guernsey-Holstein herd. Ill.

Inheritance of fleece characters in pure-bred and cross-bred sheep. Wyo.

Inheritance of milk production and maternal instinct. Ohio.

A study of the inheritance of wool production. Ohio.

Inheritance of the fur qualities of Carakul sheep. Tex.

Inheritance of horns and wattles in Toggenberg goats. Tex.

Inheritance of the ridging characteristics in goats. Tex.

Effect of cumulative selection on external characters (with poultry). N.Y. Cornell.

Inheritance of sidesprigs in poultry. Kans.

Inheritance of characters. (Cont.)

The inheritance of higher fecundity and the mode of transmission in poultry.
Mich.

A study of the inheritance of fecundity in White Leghorns: (a) Analysis of existing records, and (b) selection and crossing of high-and low-producing strains. Conn. Storrs.

A study of the genetic factors involved in the hatching of eggs: (a) Breeding, and (b) measurement of the characteristics. Conn. Storrs.

Inheritance of egg production in Leghorns. N.Y. Cornell.

Inheritance of egg production in heavy breeds. N.Y. Cornell.

Inheritance of high egg production. Oreg.

Inheritance in egg production. Data on maturity as indicating productive ability, inheritance of size and color of eggs, and similar characters. Nebr.

The inheritance of weight, color, and texture of shell of eggs in the single comb White Leghorn. Idaho.

Inheritance of blue in poultry.--To ascertain why the so-called blue color does not breed true. Kans.

Studies on the inheritance of plumage colors and patterns in poultry: (a) Inheritance of sex-linked plumage characters, (b) linkage between several sex-linked genes for plumage characters, and (c) Inheritance of other characters. Conn. Storrs.

To determine the inheritance of broodiness in poultry and its possible connection with the physiology of the reproductive organs and the external stimuli. Mass.

Studies of color inheritance in guinea pigs. Kans.

Studies of inheritance of defects in guinea pigs. Kans.

Studies of the inheritance of size in guinea pigs. Kans.

Studies of color inheritance in rats. Kans.

A study of the inheritance of economic fur characteristics in skunks. Ill.

Variations and mutations.

The origin, nature, and inheritance of apparent mutations in certain plants.
(Riverside Substation) Calif.

Inheritance of variations induced by difference in nutrition of wheat. N.Y.
Cornell.

Variations in the common daisy. N.Y. Cornell.

SOILS:

General soil studies.

The abnormality of soils in cylinder and lysimeter experiments.--To determine the presence or absence of zinc in cylinders where crops have failed: A comparison of glazed tile and galvanized iron cylinders, with and without a coating of asphalt. The effect of surface drainage and the losses of nitrogen and lime. Tenn.

Uniformity tests on soil bins. Ill.

Systematic study of Michigan's soils, including soil classification, mapping, composition, topography, erosion, present state of productivity, land utilization, and recommendations for soil improvement. Mich.

Establishing methods of studying and determining the colloids in soils. Mich.

Study on the activity of soils. Mich.

Lysimeter investigations. Percolation from same soil with same amounts of water with different cropping systems. (In cooperation with the Office of Western Irrigation Agriculture, U.S.D.A.) (Hermiston Substation) Oreg.

Soil studies, especially regarding conditions and properties of phosphoric acid, potash and humus, and the nitrifying and other biological properties of soil. Tex.

Acidity, soil reaction, liming. (See also Fertilizers - lime).

Soil acidity. R.I.

Soil acidity studies.--To throw more light upon the various phases of soil acidity, its nature, its kinds in different types of soil, its effect upon various crops, and the effect of various fertilizers and soil treatments upon soil acidity. Ind.

Study of the nature and intensity of soil acidity. W.Va.

Acidity, soil reaction, liming. (Cont.)

A study of acid soils of the State. Ark.

An acidity survey of soil types by counties. Oreg.

Study of physical-chemical aspects of soil acidity. Investigation of: (a) The relationship of adsorption to the production of soil acidity, (b) the effect of soil acidity on the osmotic and other physical-chemical properties of soils. Mich.

Chemical investigations of acid soils.--To determine why some acid soils of Oregon respond to lime and others do not. Oreg.

Soil acidity and liming. Nebr.

Soil acidity tests and lime trials. Oreg.

Testing soils for the lime need. Mo.

Lime requirements of an acid soil.--To compare the value of different forms of lime. Md.

Lime absorption and acidity of field A. Mass.

The lime requirement of soils. Comparative results of different methods for determining lime requirements, and the effect of grinding soils upon their lime requirements as determined by different methods. Ill.

Lime requirements of the soils of New Hampshire. N.H.

The cause of toxicity of acid soils and a consideration of the hydrogen-ion as one of the probable causes. Ala.

Different amounts of limestone on very acid soil. Pa.

The behavior of limestone and phosphates in relation to soil acidity, including H-ion concentration studies. Ky.

The development of the calcium acetate method of determining so-called soil acidity. The development of a simple means of determining soil organic matter content; the nature of so-called soil acidity in Vermont soils. Vt.

Hydrogen-ion concentration of the most important soil profiles of the southwestern and south central part of the State. Minn.

The tolerance of plants to acid conditions, as determined by the H-ion concentration. Del.

Alkali.

A study of the chemical, physical, and physiological effects of salts on soils and crops, and of methods of reclaiming alkali lands. Calif.

Action of soil alkali.--To determine the effect of organic matter and soil texture on the action of alkali and the changes which occur in alkali salts in the soil. Utah.

The natural occurrence of alkali in soil under cultivation. Wyo.

Alkali investigations. Experiments on the relative tolerance of certain crops to alkalinity and high concentration of salts, and of methods of testing alkali soils, with special reference to the correlation between chemical tests and toxicity to plants. Calif.

A study of the effect of alkali and plant food under irrigation and drainage conditions. A study of the movement of the common alkali salts under irrigation and drainage; the effect of alkali on the character of the plant food and the effect on soil fertility of leaching salts from the soil. N. Mex.

Lysimeter investigations. Percolation from alkali soils treated with alum and from those not treated. Irrigation water and percolation water from all lysimeters analyzed for salts in solution. (In cooperation with the Office of Western Irrigation Agriculture. U. S. D. A.) Oreg.

Slick spots in soils, their nature and reclamation. Idaho.

Soil investigations. A study of the methods of eliminating slick spots. (Caldwell Substation.) Idaho.

Irrigated soil investigations. Correction of alkali and slick spots. To find some method of eliminating the slick spots. Idaho.

Reclamation of alkaline lands by flooding and drainage. Calif.

Gypsum treatment of black alkali at the University Farm. Ariz.

Modification of tolerance for alkali by concomitant soil conditions. Ariz.

Tolerance of crops for alkali. Idaho.

Composition of soils.

The composition of soil types. Tex.

Physical, chemical, and biochemical studies of soils to which nitrate of soda has been applied. N.J.

Composition of soils. (Cont.)

Effect of chemical agents on oxidation in soil forming rocks and minerals. Mich.

The chemical analysis of North Dakota soils.--To analyze all soil samples submitted by the Director of the soil survey. N.Dak.

The chemical analysis of soils from the experiment farm at Sheridan.--To find the per cent of all the soil constituents at three depths (surface, intermediate subsoil, and deep subsoil) at five year intervals. (In cooperation with the Bureau of Plant Industry, U.S.D.A.) Wyo.

Further studies on the solubility of rocks, minerals, and soils, and the chemical nature of their solutions. Mich.

The effect of continuous application of fertilizer on composition of soils. S.C.

Lysimeter investigation. Mineral constituents. Ky.

A comparison of the total calcium content of cultivated and virgin soils with particular reference to the possible limitation of crop production by deficiency of this element. Ky.

Nitrogen fixation.

New studies on nitrogen fixation. Calif.

Fixation of nitrogen in Colorado soils. In relation to the growing of potatoes in the Greeley section. Colo.

Influence of soil reaction on nitrogen fixation by legumes. N.J.

The influence of nutrition on nitrogen fixation by Azotobacter chroococcum. Ohio.

Nitrogen transformation.

The conditions affecting the physiology of the process of nitrification. Ohio.

The influence of higher plants on nitrogen transformations in soils. N.Y. Cornell.

Organic matter in soils.

A study of the organic matter of soil.--To ascertain the relation between the cropping capacity of the soil and the character of the organic matter. N.Dak.

Organic matter in soils. (Cont.)

To determine the organic matter and humus content in Oregon soil types. Oreg.

To study the effects of irrigation, rotation, and manure on organic matter supply. Oreg.

Laboratory study on the maintenance of nitrogen and organic matter in the manure and crop rotation experiments. Ky.

Maintenance of organic matter in eastern Washington soils. Wash.

Removal vs. non-removal of organic matter in soils. Miss.

Relation of organic matter (humus) of the soil under different systems of soil management to crop production, with special reference to the changes which take place in the plant food content and the physical condition of the soil. Iowa.

Effect of lime on the decomposition of organic matter in soils. Del.

Residual effect of crops. (See similar heading under Field crops.)

Soil erosion and leaching.

Investigation of water penetration, evaporation, run-off, and erosion in the case of an average Missouri soil. Mo.

Control of erosion. Ill.

Soil fertility. (See also Field crops - rotations.)

Permanent system of fertility. Ill.

Permanent fertility studies (Greenville, Nephi Substations). Utah.

Soil fertility study. (Northwest Branch Station, Crookston.) Minn.

Soil requirements. N.Y. State.

Soil fertility investigations in western Washington. Wash.

Fertilizer plat studies. Fertility studies on 104 one-tenth acre plats at Geneva. N.Y. State.

Soil fertility investigations. General investigation of the peculiar characteristics of Hawaiian soils and of their relations to fertility. Hawaii.

Soil fertility. (Cont.)

A survey of the potential fertility of West Virginia soils.--To determine the potential supplies of plant food, lime, and organic matter in the soils of the State. W. Va.

Soil experiments.--To determine physical and chemical properties of Guam soils or soil conditions; and the ultimate improvement of Guam soils. Guam.

Soil investigations.--To determine the needs of the soils of this area. (Caldwell Substation.) Idaho.

Study of infertile soils. Mont.

Methods of maintaining soil fertility. N.J.

Maintenance of soil fertility.--To determine the best methods of maintaining or increasing the productive capacity of the Fargo clay of the Red River Valley, including cropping systems, various rotations, and continuous culture and fertilizer tests. N.Dak.

To determine the method by which the fertility of the soil may be maintained by the application of farm manure and commercial fertilizers. (Edgely Substation). N. Dak.

A study of the underlying factors influencing soil fertility as evidenced by the chemical composition of the soil solution. Calif.

Availability and utilization of plant nutrients in soils under different methods of treatment. N.Y. Cornell.

An investigation of the changes in the crop-producing power and the physico-chemico-biological properties of soils long under cultivation. Mich.

An attempt to restore productive fertility to worn-out and maltreated soils. Mass.

Effect of different methods and classes of farming on soil fertility. Wis.

The comparative effect of different fertility treatments on crop yields in the Hopkins soil bins. Ill.

Fertility investigations with two-year crop rotation system on Wisconsin drift soils: (a) The effect of manure and crop residues, (b) the effect of rock phosphate with manure (live stock system), (c) the effect of rock phosphate with crop residues (grain system). Iowa.

Fertility investigations with three-year crop rotation system on Wisconsin drift soils: (a) The effect of manure and crop residue, (b) the effect of rock phosphate with crop residues (grain system), (c) the effect of rock phosphate with manure (live stock system). Iowa.

Soil fertility. (Cont.)

Fertility investigations with four-year crop rotation system on Wisconsin drift soils: (a) The effect of various applications of manure and of crop residues, (b) the effect of rock phosphate, bone meal, acid phosphate, potassium salts, and complete commercial fertilizers with manure (live stock system), (c) the effect of the same fertilizers with crop residues (grain system, no manure), (d) the application of complete commercial fertilizers broadcasted or applied in the hill, (e) the effect of limestone and air-slaked lime. Iowa.

Fertility investigations with five-year crop rotation, including alfalfa: (a) The effect of manure and crop residues, (b) the effect of rock phosphate and acid phosphate with manure (live stock system), (c) the effect of phosphates with crop residues (grain system). Iowa.

Crop rotation and fertilizer experiments.--To determine the influence of various rotations maintaining soil fertility. Mo.

The influence of rotations upon the maintenance of soil fertility. S.Dak.

Influence of cropping and tillage on the fertility of wheat soils in the Columbia River Basin. Oreg.

To ascertain the effect on soil productivity of continuous cropping, when the organic matter of the soil is maintained by means of seeded crops. N. Y. Cornell.

Effect of prolonged production of alfalfa upon soil fertility. Comparison of plant food content of variously cropped soils. Kans.

The effect of the cowpea crop on soil fertility with special regard to a wheat crop and a corn crop following. Tenn.

Fertility investigations with continuous cropping (corn) on Wisconsin drift soil. Iowa.

Study of the residual effects upon the soil, and of the utilization by rotation crops, of the commercial fertilizers, manure, and lime. Pa.

Soil fertility studies. Effects of certain crops on soil fertility. Plots planted to various crops and combinations of crops, followed by wheat as an indicator of the fertility. Miss.

Plant food losses from the soil due to different crops. Mont.

The rate of accumulation of nitrogen and carbon in soils under different systems of green manuring and cropping.--To determine the effect of different systems of green manuring and cropping upon the accumulation and loss of nitrogen and carbon in the soil. Mo.

Soil fertility. (Cont.)

Timber soil investigations.--To investigate the most efficient method of soil improvement by the growth of legumes. (Sandpoint Substation) Idaho.

To test various mixtures of fertilizer salts on different courses in a crop rotation as means of maintaining soil productivity. N.Y. Cornell.

Maintenance of soil fertility on the Edgeley loam at the Edgeley Substation, on the Barnes fine sandy loam at the Langdon Substation, and on the Williston silt loam at the Williston Substation. To determine the influence of the use of farm manure and crop residues supplemented with artificial fertilizers under rotation under rotation culture. N. Dak.

Soil rejuvenation study. The use of green manure crops and the effect of certain mineral fertilizers. N.E.

Fertility investigations on farms owned by the State. The effect of manure, rock phosphate, and commercial fertilizers on soils on certain State farms. Iowa.

Experiment in maintaining fertility in the garden: (a) The minimum amount of manure necessary to obtain profitable vegetable crops, (b) to what extent green crops and fertilizers can be substituted for manure, (c) a profitable combination of chemical fertilizers and manure, and (d) the effect of lime upon crop production. N. H.

Soil fertility.--To determine what is in certain types of soil, either chemical, physical, biological, or otherwise, which makes them especially adapted to particular crops and underlies their fertilizer requirements. (In cooperation with the U. S. Department of Agriculture.) N.C.

Soil fertility as influenced by microorganisms in their relation to the presence and disappearance of organic matter. Mass.

The relation of sulphur to soil fertility and plant composition. Mainly with alfalfa and red clover. Oreg.

Sulphur in plants and soils and its significance to permanent soil fertility; also determination of the best sulphur compound for correcting sulphur deficiency in soil. Ky.

Cause of unproductiveness of recently cleared coniferous timber soils, relation of toxicity thereto, and corrective measures. Idaho.

Soil flora.

Soil bacteriological investigation methods. Iowa.

Soil flora. (Cont.)

Critical study of soil microbiological methods and of principles upon which they are based. N.J.

Studies of soil microbiological complexes and fundamental relationships involved. N.J.

Bacterial activities and crop production. Iowa.

Effect of soil acidity on bacteria associated with the nitrogen cycle. Wis.

Microbiological study of certain Oregon soils having an acid reaction. Oreg.

Effects of alkali salts on bacteriological activities in soils. Idaho.

Bacteriological studies of alkali soils in relation to nitrogen fixation. Colo.

Treatment of soils as affecting bacteria. Iowa.

Relation of biological activities in the soil in crop production as affected by definite agricultural practices. Wash.

Factors which accelerate or retard the action of microorganisms, particularly as affecting the accumulation of plant foods and of disease infected or of disease producing residues in the soil.--To determine the relation of certain bacteria and fungi of the soil to cropping methods, their distribution, habits of life, and the material upon which they are living, to arrange for the control of conditions for the maximum efficiency of microorganisms, with reference to increasing crop production and for control of those which tend to be destructive. N. Dak.

Effects of different soil treatments, long continued, upon bacterial activity in the soil. Mo.

Some biological changes brought about in certain soils by different cropping, fertilizers, liming, and manurial treatments. Del.

Effect of green manuring on activity of soil microorganisms. Md.

Bacteriological effect of green manures on a typical Mississippi soil. Miss.

Weeds, cornstalks, and the straw of small grains as factors in distributing desirable bacterial activities in soils. Ill.

Effects of wood and forest products on bacteriological activities in soil:
(a) Ammonification and nitrification, and (b) nitrogen fixation. Idaho.

Soil flora. (Cont.)

The effect of commercial fertilizers on bacterial activities. Iowa.

The modification of soil flora through climatic influences. Calif.

Water of guttation in plants in relation to the development of bacteria of the soil. N.Y. Cornell.

The relationship between the bacterial flora, especially the nitrogen fixers, and the chemical composition of the soil. Utah.

Soil fertility as influenced by microorganisms in their relation to the presence and disappearance of organic matter. Mass.

The relation of microorganisms to the decomposition of organic compounds toxic to the growth of higher plants. Ala.

Soil organisms, their functions and their relation to the ammonification of farm manures. N.Y. State.

Soil microbiology.--To determine the rôle played by microorganisms in the decomposition of peat. Mich.

Growth of bacteria in sterilized soil, both planted and unplanted, when inoculated with pure cultures of certain bacteria capable of producing transformations of nitrogen. N.Y. Cornell.

A study of calcium sulphate and biological reactions in soil. N.Y. Cornell

Isolation of pure cultures of organisms capable of oxidizing sulphur compounds in soil and solution. N.J.

The influence of nutrition on nitrogen fixation by Azotobacter chroococcum. Ohio.

A study of the influence of the absolute reaction of the soil solution upon the growth and activity of Azotobacter in soils. Kans.

Azofication - effect of reaction upon the growth of Azotobacter. Pa.

Studies on the longevity of Bacillus radicicola in the soil. After the crop is removed how long do the bacteria live in the soil and retain the ability to inoculate the next crops? Mo.

Soil actinomycetes. The occurrence and metabolism of soil actinomycetes and their rôle in soil fertility. N. J.

Soil management.

Soil management work.--To ascertain how best to manage farm land in the interior. Alaska.

Soil management studies, including: (a) Moisture and structural relationships of the soil, (b) fertilizer needs of representative soils, and (c) immediate and residuary effects of different forms of lime and phosphorus. Mich.

Reclamation experiment to determine best method of improving worn-out gullied soils. (Charlotte Court House Substation.) Va.

Conserving the plant food in trucking soils during the winter. Md.

A preliminary study of the causes and corrections of persistently unproductive garden soils. Pa.

Biennial subsoiling. Ala.

Effect of dynamiting field subsoils on field crops. Ariz.

Different amounts of clay on dune sand with various soil treatments. Ill.

Summer fallow experiment (Akron Substation). Colo.

Experiments to determine the best systems of soil management for the most important soil types in Missouri.--To determine the need of lime, phosphorus, potash and nitrogen as well as the return to be secured, the use of green manures, farm manures, in some cases drainage and certain cultural methods on the more important soil types in Missouri. Mo.

Soil treatment on different rotations and on continuous corn. Ill.

Tests of certain methods of soil management applied to Ontario loam and Volusia silt loam at Churchville, Alfred, and Virgil. N.Y. Cornell.

Soil improvement. To build up a new soil from volcanic ash. Alaska.

Soil management and fertilizer investigations. The upbuilding of fertility of the more important soil types. Md.

Management of marsh soils. Wis.

Management of sandy soils. Wis.

Management of heavy clay soils. Wis.

The effect of drainage, deep tillage, manure, and lime on "push" soils. Iowa.

Soil moisture.

- Soil moisture studies. Utah.
- Soil moisture constants. Utah.
- Movement of water in soils. Minn.
- Movement of soil moisture from small capillaries to large capillaries upon freezing. Mich.
- Studying concentration of soil solution and measuring forms of soil water. Mich.
- Moisture, soil, and crop relations. Utah.
- Factors affecting distribution of water in soils. Calif.
- Studies of the effect of certain tillage practices on the storage and use of soil moisture. (North Platte Substation). Nebr.
- Effects of types of cultivation upon moisture and nitrates in the soil. Ark.
- Systematic soil moisture studies under humid, dry farming, and irrigated conditions, to determine value of (a) different tillage treatments, (b) fertilizers, and (c) manure, in increasing the efficiency of moisture made available. Oreg.
- To determine the amount and rate of use of soil moisture by the small grain crops and corn, the depth of penetration and use, and the amount of water stored on fallow. (Dickinson Substation). N.Dak.
- The effect of organic matter on soil moisture relations. Calif.
- Amount and condition of drainage water from soils with special reference to the effect of liming and cropping. N.Y. Cornell.
- Water requirement studies. Oreg.
- Critical soil moisture points.--To determine and measure any difference in the wilting point and time of irrigation for different crops and the factors affecting the same. Oreg.
- Soil moisture capacity for the root zone as a guide to time and amount of irrigation. Oreg.
- Relation of soil moisture, structural development, and yield of small grain. Colo.

Soil moisture. (Cont.)

Soil moisture and nitrate investigations. (Moro Substation) Oreg.

Evaporation of soil water and methods of conservation for plants.--To determine the efficiency of windbreaks in the conservation of water for plants. Okla.

Lysimeter investigations. Percolation for different soils and crops with approximately uniform applications of water. (In cooperation with the Office of Western Irrigation Agriculture, U.S.D.A.) (Hermiston Substation) Oreg.

Soil nitrogen.

A study of the nitrogen economy of the soil. Tenn.

Nitrate production and accumulation in soils in their relation to an economical utilization of nitrogen in cropping systems. Ill.

Nitrate accumulation in a soil as affected by the crop and cultivation.--To see whether the crop and cultivation cause any effect on the amount of nitrate nitrogen produced in a soil. Mo.

Study of conditions which favor the development and control of nitrates in the soil. Studies of effect of mineral salts, organic matter, and moisture on nitrification in four soil types. Mont.

Formation of nitrates in soil during and after the growth of timothy, clover, corn, and oats, as determined by analysis of the leachings. N.Y. Cornell.

The effect of different cover crops or green manures when plowed under, in the formation of nitrates in soils. N.Y. Cornell.

To measure the nitrogen balance in soil under alfalfa and timothy grown continuously and under certain crop rotations. N.Y. Cornell.

Lysimeter investigations. Study of nitrogen balance in legume and non-legume rotations. N.Y. State.

To study effect of organic matter on bacterial activity and accumulation of nitrates in soils. Oreg.

Nitrogen economy of the soil as influenced by phosphorus, potassium, and additional nitrogen. Ohio.

Effect of nitrogenous fertilizers on nitrogen loss from the limed and unlimed soil. Tenn.

Soil nitrogen. (Cont.)

Influence of calcium carbonate in soil on the various forms of nitrogen.
N.Y. Cornell.

Amount and form retained by surface and subsoil of different forms of
nitrogen applied to surface soil. Tenn.

The relation of concentration of soil solution to nitric nitrogen in soils
containing large quantities of available nitrogen, and its effect upon
plant growth. N. Mex.

Physical, chemical, and biochemical studies of soils to which nitrate of
soda has been applied. N.J.

The changes in the nitrogen content of the soil under various conditions,
such as limed, unlimed, fallow, and with and without green manure crops,
etc. Tenn.

The effect of sod on the disappearance of nitrates from soil when the trees
are injured by sod. N.Y. Cornell.

Soil fertility experiments.---Effects of type of cultivation upon moisture and
nitrates in the soil. Ark.

Organic nitrogenous compounds of peat soils, the effect of lime on muck and
peat soils. Study of the quantitative relationship between glutaminic
and aspartic acids and the acid-amidenitrogen and isolation of individual
nitrogenous compounds. Mich.

Adsorption of nitrates by soil and other finely divided substances. N.Y.
Cornell.

Sulfofication and nitrogen content of the soil. N.Y. Cornell.

The quantities, forms, and sources of nitrogen and sulphur contained in the
rainfall at Ithaca. N.Y. Cornell.

Soil moisture and nitrate investigations. (In cooperation with the Office
of Cereal Investigations, U.S.D.A.) (Moro Substation) Oreg.

Soil phosphorus.

A study of the influence of different methods of farming on the phosphorus
content of the soil, and of the conditions which influence the availability
of the phosphorus in crops. Wis.

Comparative solubility of soil phosphorus after treatment with rock and acid
phosphate. Ill.

Soil phosphorus. (Cont.)

Fixation of phosphoric acid by soils. Va.

Phosphorus relations of soils and plants. Wis.

Soil physics.

Soil physics investigations. (Northwest Branch Station, Crookston). Minn.

Studies on soil structure. Mich.

Heat of wetting of soils, rocks, and mineral powders in various organic and inorganic liquids and in water. Mich.

Relationship between heat of wetting, moisture equivalent, and unfree water. Mich.

A study of the hourly and daily fluctuations in the temperature of the soil. Records at different depths under bare and cropped surfaces. Md.

Causes for the difference in frost occurrence between peats and mucks and mineral soils. Mich.

The freezing point and dilatometer methods. Mich.

To determine the soil temperatures at the Michigan agricultural college temperature station throughout a series of years. Mich.

Relation of soil temperature to soil parasites and other organisms, including cabbage yellows, flax wilt, tomato wilt, potato Rhizoctonia, legume tubercles. Wis.

Study of colloidal swelling of dry soil when wetted. Ariz.

Soil potash.

Studies in possible changes in soil potassium. Potassium supply of soils as affected by fertilizer treatment and cropping. Ohio.

An investigation of the factors affecting the availability of the potassium compounds of the soil. Md.

The rendering available of potash in insoluble silicates by the action of soil bacteria. Ky.

Soil potash. (Cont.)

A study of the availability of soil potash with the object of developing a system of diagnosis for the soils of the State. Mass.

Cause of apparent low content of available potash in soils giving feeble response to potash fertilizers as shown by the usual analytical methods. Ga.

Soil sterilization.

Steam sterilization of greenhouse soils.--To determine a better method of steam sterilization of greenhouse soils than the ones now practiced. Ind.

Soil sulphur.

Studies in sulphur oxidation in soils. Oreg.

Isolation of pure cultures of organisms capable of oxidizing sulphur compounds in soil and solution. N.J.

Sulfofication in soils. Iowa.

Sulfofication and nitrogen content of the soil. N.Y. Cornell.

Sulphur in plants and soils and its significance to permanent soil fertility; also determination of the best sulphur compound for correcting sulphur deficiency in soil. Ky.

Influence of lime and magnesia on conservation of soil sulphur. Tenn.

To study the losses and gains in soil sulphur from rainfall and drainage. Oreg.

The quantities, forms, and sources of nitrogen and sulphur contained in the rainfall at Ithaca. N.Y. Cornell.

The needs of Texas soils for sulphur. Tex.

Soil surveys.

Arkansas soil survey. Ark.

Soil survey of the Eureka area. (In cooperation with the Bureau of Soils. U.S.D.A.) Calif.

Soil surveys. (Cont.)

Soil survey of the Gilroy-Hollister area. (In cooperation with the Bureau of Soils, U.S.D.A.) Calif.

Soil survey of Lancaster area. (In cooperation with the Bureau of Soils, U.S.D.A.) Calif.

Soil survey of the Palo Verde Valley area. Calif.

Soil survey of the Victorville area. (In cooperation with the Bureau of Soils, U.S.D.A.) Calif.

A detailed survey of a designated area each season, as funds will permit. (In cooperation with the Bureau of Soils, U.S.D.A.) Idaho.

Soil survey (analysis). Ill.

State soil survey (mapping). Ill.

Soil survey of Indiana.--To determine and accurately map the various soil types of the State, including the making of chemical analyses and a detailed description of each soil type, together with a discussion of the fundamental methods practiced and the general agricultural adaptation of the particular soil type. (In cooperation with the U.S.D.A.) Ind.

Detailed soil survey of Iowa: The preparation of soil maps of each county, showing the location of all soil types, roads, streams, etc., and of a report describing all soil types, giving results of soil analyses, fertility studies on individual types in the greenhouse and field, and recommendations for treatment. Iowa.

Soil surveys. (In cooperation with the Bureau of Soils, U.S.D.A.) Ky.

Soil survey of the State. (In cooperation with the Bureau of Soils, U.S.D.A.) Md.

Soil survey. Minn.

The determination and mapping of Missouri soil types (soil survey). Mo.

Field soil studies (soil survey). Mont.

Soil survey of the State.--To map and establish the boundaries of the different types of soil occurring in the several counties of the State. (In cooperation with the Bureau of Soils, U.S.D.A.) N.C.

Soil surveys. (Cont.)

Soil survey. Oreg., S.Dak., (In cooperation with the Bureau of Soils,
U.S.D.A.) Tex., Utah.

Soil types.

Soil management and fertilizer investigations. The upbuilding of fertility
of the more important soil types. Md.

To ascertain whether the soil type, as now distinguished, is an index to the
fertilizer needs of a soil. N.Y. Cornell.

To ascertain whether the composition of a soil type, as now classified, is
fairly uniform and characteristic. N.Y. Cornell.

An investigation to determine the plant food content and the acidity of each
type of soil in each of the counties of Iowa. Iowa.

Pot culture studies of the fertilizer requirements of different soil types.
Md.

Soil type experiment.--To determine the plant food deficiencies of the main
types of soil as mapped in the State. N.C.

Peat soils. Minn.

The peat soils of Idaho. Idaho.

Chemical and bacteriological studies of peat. N.J.

Subsiding and compacting of peat soils. Calif.

Organic nitrogenous compounds of peat soils, the effect of lime on muck and
peat soils. A study of the quantitative relationship between glutaminic
and aspartic acids and the acid-amide nitrogen and isolation of individual
nitrogenous compounds. Mich.

Experiments on Muskeg soils. Liming native Muskeg. To study the effect of
limestone and quicklime upon the native vegetation of Muskeg land and to
determine the value of such applications as a factor in preparing Muskeg
land for cultivation. (North Central Branch Station, Grand Rapids) Minn.

Fertilizer on Muskeg for garden crops. (North Central Branch Station, Grand
Rapids) Minn.

Soil types. (Cont.)

Fertilizer treatment on Muskeg for grain and grasses. (North Central Branch Station, Grand Rapids). Minn.

A study of muck soil. N.Y. Cornell.

Field and laboratory investigations with muck soils. Mich.

The effect of drainage, deep tillage, manure, and lime on "push" soils. Iowa.

Sandy soils. Minn.

Cropping the drifting sandy soil of southeastern North Dakota.--To develop a satisfactory cropping system and handling method for the sandy soils of southeastern North Dakota. (Demonstration Farms) N.Dak.

Soil correction trials.--Crops, fertilizers, and cultural treatment for "white land". Oreg.

Soil correction trials.--Crops, fertilizers, and cultural treatment for "Black sticky land". Oreg.

A study of the effect of lime and organic matter on the impervious Kirkland upland soil. Okla.

Field and pot tests to determine the fertilizer requirements of Dekalb soils. Pa.

Field experiment on Volusia soil.--To determine the lime and fertilizer requirements. Pa.

Field experiment on Westmoreland soil.--To determine the lime and fertilizer requirement. Pa.

Study of the fertilizer and lime requirements of Rutherford Country soils. Tenn.

Studies of the tight clay layer in the soils of the level prairies of Missouri.--To determine the materials and conditions responsible for the tight clay layer which underlies the level prairies, particularly in the northeastern and southwestern portions of Missouri and to find, if possible, some means of lessening its influence upon the productivity of these soils. Mo.

Laboratory and greenhouse study of "tight clay" subsoil. Ill.

Soils of the low-lime area. Minn.

Tillage as related to fertility and productivity.

Cultural methods. Utah.

Field crop investigation under both dry farming and irrigation. Tillage experiments with wheat, oats, barley, rye, field peas, corn, alfalfa, sunflowers, grasses, potatoes, and other minor crops. (In cooperation with the Office of Cereal Investigations, U.S.D.A.) (Burns Substation) Oreg.

Tillage experiments. Different methods of handling the summer fallow for wheat production. (In cooperation with the Offices of Cereal and of Forage Crop Investigations, U.S.D.A.) (Moro Substation) Oreg.

Cooperative experiments in cultivation methods.--To determine rotation and cultivation methods best suited for this district and similar areas, especially methods best suited for conserving moisture and humus in the soil. (Edgeley Substation) N.Dak.

Tillage investigations.--Time and method of plowing. Oreg.

Tillage experiments.--Different methods and time of plowing. (In cooperation with the Offices of Cereal and of Forage Crop Investigations, U.S.D.A.) (Moro Substation) Oreg.

Time and method of intertillage. Tex.

Depth and time of plowing experiment on brown silt loam. Ill.

Fall v. spring plowing. (Northeast Demonstration Farm, Duluth) Minn.

Depth of plowing test.--To determine the effect on the growth of crops on peat soils by turning the soil at different depths. N.C.

A study of the effect of differential tillage with depth of plowing as a specific factor. S.Dak.

Deep and shallow tillage for various soil types. Wis.

Depth of plowing experiment on gray silt loam on tight clay. Ill.

Subsoiling compared with ordinary plowing. Ill.

A comparison of 15-inch plowing with 7-1/2-inch plowing and both with 7-1/2-inch plowing plus additional 7-1/2-inch subsoiling. Ohio.

Cultural methods with farm crops.-- To study the effect of subsoiling, packing, etc. (Northwest Branch Station, Crookston) Minn.

Soil fertility experiments.--Effects of type of cultivation upon moisture and nitrates in the soil. Ark.

Large as related to fertility and productivity. (Cont.)

A study of the effect of stirring soil on moisture content, oxidation, nitrification, and crop yield. S.C.

Cultivation weed experiment.--To study the effect of weeds growing unmolested, killing weeds by scraping but producing no mulch, and shallow cultivation with both blade and level cultivator, on the yield of crops, particularly corn, both with and without the "standard fertility" treatment. Ill.

Time and method of seed bed preparation. Tex.

Miscellaneous.

Investigation of petroleum-saturated soils. Ill.

Translocation of soluble salts in soils and its relation to amount and manner of application. Mich.

The effects of heating soils on germination and plant growth, and the development of diseases in heated soils which have become re-infested. Wis.

The immediate and residuary effects of soluble salt on the physical and chemical properties of soils. Mich.

Agricultural possibilities of logged-off lands. Idaho.

Glacial water levels in Tompkins and Cayuga Counties. N.Y. Cornell.

FERTILIZERS.

(See also Soil fertility and Botany - Plant nutrition.)

Fertilizer experiments, general. (See also Field crops - specific crops and Rotations.)

Soil fertility experiments.--Fertilizer experiments. Ark.

Fertilizer experiments. Minn., (Delta, Holly Springs, and Raymond Substations) Miss., (Burns Substation) Oreg.

Tests with commercial fertilizers. Idaho.

Fertilizer experiments, general. (Cont.)

General comparative fertilizer tests. S.C.

Cooperative fertilizer experiments. Nebr.

Fertilizer ratio experiment, so-called "triangle experiment". (In cooperation with the Bureau of Plant Industry, U.S.D.A.) N.J.

Cooperative fertilizer tests. (Holly Springs Substation) Miss.

Pot culture studies of the fertilizer requirements of different soil types. Md.

Fertilizer experiments on the chief soil types of the State. Oreg.

General comparative fertilizer tests on the various soil types in South Carolina, conducted in cooperation with farmers. S.C.

General comparative fertilizer tests at the Pee Dee and Coast Station, with corn, cotton, and small grain. S.C.

Complete fertilizers. (Northeast Demonstration Farm, Duluth) Minn.

Commercial fertilizers vs. stable manures. Ohio.

Irrigation agriculture investigations.--A test of commercial fertilizers and barnyard manure. (Garden City Substation) Kans.

Soil fertility tests.--A comparison of commercial fertilizers, barnyard manure, and green manures. (Scottsbluff Substation) Nebr.

Tests of commercial fertilizers with and without manure. (Astoria Substation) Oreg.

Pot experiments with commercial fertilizers. The percolation water from the pots being analyzed. (In cooperation with the Office of Western Irrigation Agriculture, U.S.D.A.) (Hermiston Substation) Oreg.

Fertilizer - rotation experiments. Ala.

Fertilizer, rotation, and soil improvement investigations. Tex.

Crop rotation and fertilizer studies.--To determine the relative merits of several different crop rotations and to compare different systems of fertilization, including commercial fertilizers and farm manures. Ind.

Crop rotation and soil fertility experiments. Tests of crop rotations, commercial fertilizers, and manure. Kans.

Fertilizer experiments, general. (Cont.)

Crop experiments.--To make comparative studies of various rotations and fertilizer applications in regard to their effect upon crop and soil. Nebr.

Timber soil investigations.--To investigate the value of commercial fertilizers when applied to crops in a rotation. (Sandpoint Substation) Idaho.

Fertilizer experiment.--To determine the kind and amount of fertilizer most profitable on different soils, using rotations common to each section. N.C.

Soil fertility experiments: Rates and times of applying plant foods. Ark.

Soil fertility experiments: Sources of plant food. Ark.

Liming and fertilizer experiments, including a comparison of different phosphates. Tenn.

Comparisons of different carriers of nitrogen, phosphorus, and potassium. Ohio

The comparative profits of equal investments in phosphorus, in phosphorus and potassium, and in phosphorus, potassium, and nitrogen. Ohio.

The use of standard carriers of nitrogen, phosphorus, and potassium singly, in combinations of two elements, and the three together in different proportions and amounts, in various crop rotations and in continuous culture. Ohio.

The use of gypsum, manure, rock phosphate, acid phosphate, sulphate of potash, and the last two in combination and the use of lime with all of the above combinations on alfalfa. (West Central Substation, Morris) Minn.

A study of upland soil. Complete commercial fertilizer test, including treatment with nitrogen, potash, and phosphorus, combined and alone, at different rates in a three year rotation. (North Central Branch Station, Grand Rapids) Minn.

Residual influence of manure, limestone, rock phosphate, and kainit. Ill.

Residual influence of manure, limestone, and rock phosphate. Ill.

Top-dressing experiments. (Staunton Substation) Va.

Fertilizer investigations on muck land. Creg.

Fertilizer experiments, general. (Cont.)

What amount of fertilizers and manures is it necessary to apply in order to keep soil fertile for truck crops. Md.

Test of theoretical amount of fertilizer compared with popular formulas. S.C.

The value of amino-phos as a fertilizing material. N.J.

Borax.

Borax fertilizer experiment. (In cooperation with the Bureau of Plant Industry, U.S.D.A.) N.J.

Quantitative borax test in connection with potash fertilization.--To determine the extent to which borax in fertilizer may be injurious under different methods of application in ordinary field practice. Ind.

The effect of compounds of borax on the growth of the bean plant. Me.

Green manures.

Experiments with green manure crops. Del.

Effect of green manuring on the soil. Va.

Comparative value of barnyard and green manures. (In cooperation with the Office of Western Irrigation Agriculture, U.S.D.A.) (Hermiston Substation) Oreg.

Bacteriological effect of green manures on a typical Mississippi soil. Miss.

Effect of green manuring on activity of soil microorganisms. Md.

The determination of the green manure and cover crops best adapted to local conditions and the ultimate improvement of Guam soils. Guam.

Experiment to determine best green manure crops for this section. (Martinsville Substation) Va.

Experiments in forage, green manure, and winter cover crops.--To determine the best use of rye, winter vetch, sweet clover, the common clovers, and alfalfa, for forage, green manures, and winter cover crop purposes. Md.

Trials with various legumes for green dressing purposes.--To find a legume resistant to caterpillar and fungus attacks which will be suitable for green dressing purposes. Virgin Islands.

Green manuring experiments, including crimson clover, hairy vetch, rye, red clover, and alsike clover. (Branchville Substation) Md.

Green manures. (Cont.)

Green manuring experiments, including cowpeas, soy beans, and buckwheat.
(Branchville Substation) Md.

What is the value of straw and of vetch and oats green manure as compared to manure. Oreg.

Determining sweet clover plants per acre, their average height and amount per acre when spring plowed as a green manure crop. Ill.

Sweet clover for nitrate production in field soils, sweet clover being used as a green manure. Ill.

Composition, age, and condition as factors in the rate of decomposition of sweet clover and other crops. Ill.

Value of cowpeas and soy beans in adding humus to the soil compared with clover sod. Md.

Green manuring experiments with cowpeas.--To determine the effect of cowpeas when turned under on non-legumes immediately following. (Jackson Substation) Tenn.

Green manuring experiments, with cowpeas in particular. Tenn.

To determine the value of straw, cover crops, and green manure in maintaining organic matter. Oreg.

Lime. (See also Soils - acidity.)

Limed v. not limed crops. Ala.

Lime studies.--To determine whether crops can be successfully grown with lime and phosphates alone. N.C.

Relation of limestone to acidity, fertility, and soil structure. Oreg.

Field tests with lime.--To ascertain beneficial effects of liming especially on the poorly drained bottom land. Alaska.

A comparison of the effect of applying different amounts of unburned limestone in amounts varying from 1000 to 6000 lbs. per acre, the application being to corn followed by crimson clover followed by soy beans. La.

The use of lime.--To determine the amount and form of lime that will give the best results. (Starkville and Holly Springs Substations) Miss.

Calcium compounds: Forms, amounts, and when best applied. Ohio.

Lime. (Cont.)

Value of ground limestone compared with hydrated lime in the flocculation of the soil particles and its relation to the germination of vegetable seeds. Md.

Limestone studies: (a) effect of fineness of limestone upon soil acidity and crop growth, (b) comparative effects upon soil acidity and crop growth of different forms of limestone and of limestone of different geological origin. Ill.

Comparison of different degrees of fineness, different amounts, and different forms of limestone and burnt lime. Ill.

Light application of limestone compared with heavy application on land which has received no lime since 1902. Ill.

Field test of the value of limestone of different degrees of fineness, as compared to equivalent amounts of burned lime, hydrated lime, and by-product lime. Pa.

Studies in lime requirements of various soil types found in the State. Del.

Lime trials with different salts and forms on six leading acid soil types in western Oregon. Oreg.

The effect of adding lime, calcium sulphate, and sulphur to Idaho types of soils. Idaho.

Residual influence of a single application of limestone. Ill.

Rates of liming experiment. (Martinsville and Holland Substations) Va.

A field comparison of various forms of lime, also rate-of-liming experiments. Tenn.

Methods of applying lime: Quantity of application. Mass.

Lime studies on peat soils.--To determine the kind and amount of lime to use on peat soils. (Wenona Substation) N.C.

Lime studies on muck soils.--To find the most economical kind and amount of carriers of lime to use on muck soils. N.C.

Lime studies. The use of lime in a standard crop rotation for this region, different forms of lime, effects of the fineness of grinding on value of limestone. Va.

To compare the relative efficiency as soil amendments of burned lime, limestone, marl, gypsum, dolomite, and magnesite and of limestone ground to different degrees of fineness. N. Y. Cornell.

Lime. (Cont.)

A comparison of the effects of: (a) Limestone, (b) limestone and acid phosphate, (c) limestone and raw rock phosphate. La.

Relation of limestone to type of crop. Oreg.

To determine the downward progress, if any, of lime through the soil as a top-dressing. Pa.

Studies on the movement of lime in various forms, through Hagerstown silt loam soil by means of lysimeters. Va.

Composition and distribution of limestone in Arkansas. Ark.

Calcium v. magnesium limestone. Md.

Calcium v. magnesium compounds. Ohio.

Decomposition of calcium and magnesium carbonates in soils under field conditions, including drainage investigations. Tenn.

Light application of limestone compared to heavy application. Ill.

Marl: - To make marl available for agricultural use. Mich.

Agricultural value of marl. Minn.

Effect of lime, calcium sulphate, and sulphur on Clyde clay soil. Ohio.

Gypsum fertilizers. (Northeast Demonstration Farm, Duluth) Minn.

Manure.

Experiments in the use of barnyard manure. (Friburn Substation) Kans.

Manure as a fertilizer for major crops. (In cooperation with the Office of Western Irrigation Agriculture, U.S.D.A.) (Hermiston Substation) Oreg.

Manuring experiments. Ky.

Manure economy tests. (Market Garden Field Station) Mass.

A study of the comparative returns from manure applied immediately prior to: (a) The seeding of wheat and (b) the seeding of cowpeas in a cowpea-wheat rotation. Tenn.

Experiments to determine the best place for the application of farmyard manure in a standard five-year crop rotation. Tenn.

Manure. (Cont.)

What is the best way to work manure into the soil? Oreg.

What is the most economic rate of use of farm manure on major field crops?
Oreg.

A study of the production and utilization of manure on Illinois dairy farms.
Ill.

How long will manure last, applied under our soil and climatic conditions.
Oreg.

Comparative value of barnyard and green manures. (In cooperation with the
Office of Western Irrigation Agriculture, U.S.D.A.) (Hemiston Substation)
Oreg.

What is the value of straw and of vetch and oats green manure as compared to
manure. Oreg.

The use of manure in different amounts and with different supplements. Ohio.

Excessive amounts of manure and phosphorus applied on land under a heavy system
of cropping. Ill.

Will it pay to reinforce manure with phosphates, ground limestone, or sulphur?
Oreg.

Studies in housing live stock for efficient handling and preservation of manure.
Oreg.

The decomposition and preservation of manure. N.Y. State.

Effect of weathering and storage upon the composition of barnyard manure. Mo.

Peat-manure experiment. Ill.

A study of various methods of preparing peat for use as barn litter, and comparison of manure in which peat was used as litter with that containing straw, when used as fertilizer upon upland soil. (North Central Branch Station, Grand Rapids) Minn.

Peat as a fertilizer on upland soil.--To compare the raw peat with stable manure as an organic fertilizer. (North Central Branch Station, Grand Rapids). Minn.

Nitrogen

Comparison of nitrogenous fertilizers. Mass.

Nitrate investigations. Mont.

Nitrogenous fertilizer experiment.--To determine the relative value of various carriers of nitrogen. (Statesville and Kingsboro Substations.) N. C.

Comparative tests of nitrogenous fertilizers at the Coast and Pee Dee Stations. S. C.

The value of different carriers of plant food ingredients. Nitrate of soda and sulphate of ammonia with more and less lime; nitrate, sulphate, cyanamid, and manure for grass top-dressing; nitrate, blood, hoof meal, horn meal, star fish, hen manure, tankage, and acid fish in sunken pots with more and less lime, with and without cover crop. R. I.

Calcium cyanamid v. nitrate of soda or ammonium sulphate as fertilizer. Ala.

The nitrifiability of various trade wastes, of products of fixed nitrogen research laboratories, especially calcium cyanamid and ammonium nitrate. Ill.

Cotton seed v. cottonseed meal as a fertilizer. Miss.

Phosphorus.

Phosphate fertilizer tests. (Northeast Demonstration Farm, Duluth) Minn.

A field test of different carriers of phosphorus. Pa.

Comparative tests of phosphate fertilizers. S.C.

The comparative values of different phosphates as determined by field experiments. Tenn.

Comparison of different carriers of phosphorus. Ill.

Liming and fertilizer experiments, including a comparison of different phosphates. Tenn.

Availability and utilization of phosphorus compounds for crop use, on the red soils of Oregon; what forms of phosphate fertilizer will give best results; what practices will make the insoluble phosphate fertilizers available to crop use; what practices will make phosphate compounds of these soils more available; what differences there may be in feeding power of crops for rather insoluble phosphates. Oreg.

Phosphorus. (Cont.)

Determination of the relative values of different forms of phosphorus upon the soil at Columbia.--To determine the availability, the value, and the effect upon both soil and crop of the phosphorus as supplied in a number of phosphorus carriers. Mo.

Relative value of different amounts of phosphoric acid on Dekalb soils. Pa.

The use of acid phosphate. (West Central Substation, Morris.) Minn.

A study of the use of a high grade acid phosphate. Iowa.

Phosphate studies.--To work out the relative efficiencies of acid phosphate, soft phosphate, rock phosphate, and basic slag on the different soil types of the State. (Willard, Swannanoa, Wadesboro, and Statesville) N.C.

The use of acid phosphate in amounts varying from 0 to 200 lbs. per acre on a 2-year rotation of wheat and clover. (West Central Substation, Morris.) Minn.

Relative availability of different natural phosphates, acid phosphates, and reverted phosphates. Ga.

The value of different carriers of plant-food ingredients.- Acid phosphate, floats, double superphosphate, Thomas slag, and bone, with more and less lime. R.I.

Comparison of acid and rock phosphate. Ill.

Comparison of different amounts of acid and rock phosphate. Ill.

Comparison of acid phosphate v. raw phosphate. Ala.

Acid phosphate compared with 200-mesh rock phosphate. Ill.

A study of upland soil. Phosphate fertilizer experiment.--To compare acid phosphate with rock phosphate, with and without manure. (North Central Branch Station, Grand Rapids) Minn.

A comparison of the effects of: (a) Limestone, (b) limestone and acid phosphate, (c) limestone and raw rock phosphate. La.

Comparison of different carriers of phosphorus both with and without limestone. Ill.

Acid and rock phosphate both with and without limestone. Ill.

Acid rock and superphosphate compared both with heavy application and light application of limestone. Ill.

Phosphorus. (Cont.)

Different amounts of rock phosphate both with and without gypsum in corresponding amounts. Ill.

Acid phosphate alone, with manure, with manure and limestone, and compared to rock phosphate with manure and limestone. Ill.

Rock phosphate v. acid phosphate.--Comparing different amounts of ground raw rock phosphate, against a complete fertilizer with acid phosphate. (Statesville Kingsboro, and Swannanoa Substations.) N.C.

Raw rock phosphate compared with steamed bone meal in a grain and in a live stock system of farming. Ill.

Phosphate experiment.--Comparing the value of rock phosphate against acid phosphate on continuous corn and crimson clover. (Swannanoa Substation). N.C.

Phosphate experiments.--To compare the availability of the phosphorus in raw ground phosphate rock with acid phosphate, when used with green manures. (Branchville Substation). Md.

An attempt to determine the reason for the superiority of limestone and acid phosphate over limestone and rock phosphate in crop production on certain types of soil. Ky.

Factors governing the availability of rock phosphate in acid soils. Ark.

A rock phosphate study on the field unit basis. Iowa.

The fineness of subdivision of rock phosphate as a factor in its effectiveness in crop production. Ill.

A field study of rock phosphate and Carrington loam to determine the relative value of this fertilizer when applied with manure or green manure at the rate of 500 lbs., 1,000 lbs., 1,500 lbs., and 2,000 lbs. per acre. Iowa.

The effect of farm manure on the availability of raw rock phosphate. N.Y. Cornell.

Composting floats to render the phosphoric acid more readily available. Va.

Composting commercial organic ammoniates, ground raw phosphates, and rich soil as affecting the solubility of the phosphates and the loss of nitrogen from the ammoniates. Ga.

Composting raw phosphate rock and sulphur with different soils. Tex.

Basic slag as a carrier of phosphates.--To determine on soil that responds to phosphoric acid when nitrogen and potash are added if basic slag is an economical material to use. N.C.

Phosphorus. (Cont.)

Comparison of different amounts of rock phosphate with different legumes. Ill.

Cullers' rotation of crops, including tests of rock v. acid phosphate. Ala.

Residual value of excess phosphorus applications. Mass.

Excessive amounts of manure and phosphorus applied on land under a heavy system of cropping. Ill.

Potash.

Test of the sources of potash fertilizers. S.C.

The value of different carriers of plant-food ingredients: Muriate of potash, sulphate of potash, kainit, magnesium-potassium sulphate; with their principal elements left out of the basal fertilizer; potassium chlorid and carbonate supplemented with sodium chlorid and carbonate with more and less lime to determine the specific effect of sodium salts on asparagus. R.I.

A study of the value of the various potash fertilization materials.--To determine the relative value of various domestic potash materials compared with standard German potash salts, such as muriate of potash, as sources of potash fertilization. Ind.

Comparison of different carriers of potash and common salt. Ill.

Comparison of soil treatment both with and without kainit. Ill.

Effect of sulphate of muriate of potash on soils of fields A and B.--To determine whether muriate exhausts the calcium content of the soil more completely than sulphate because of greater solubility of calcium chlorid. Mass.

Potassium bearing minerals as a source of potassium for plants. Ill.

Sulphur. (See also Botany - Plant nutrition.)

Function of sulphur as a plant food. Wash.

Effect of sulphur on soils and plant growth. Ohio.

Relation of sulphur to soil fertility and crop production. Ill.

The relation of sulphur to soil fertility and plant composition. Oreg.

To determine the effect of sulphur on the yield of alfalfa. (Aberdeen Substation) Idaho.

Sulphur. (Cont.)

To determine the value of sulphur on various crops and on different soil types. Oreg.

Sulphur as a fertilizer for Wyoming soils. Wyo.

The effect of adding lime, calcium sulphate, and sulphur to Idaho types of soils. Idaho.

To determine the value of sulphur and gypsum and aluminum sulphate, used in connection with sweet clover in restoring the structure of drained alkali land. Oreg.

To determine the value of sulphur and sulphate, used in connection with lime, in humid sections. Oreg.

To determine the value of sulphur and manure in liberating unavailable phosphates. Oreg.

Effect of lime, calcium sulphate, and sulphur on Clyde clay soil. Ohio.

Miscellaneous.

Chemical changes in fermenting manures and influences of such fermentation on the solubility of crude compounds of phosphorus, potassium and nitrogen, when mixed with manure. Wis.

Sodium chlorid experiment. N.J.

FIELD CROPS.

General.

Cooperative agricultural work. Okla.

Miscellaneous agronomy observations. Mont.

General crop tests. (North Montana Substation) Mont.

Crops relation experiment. (In cooperation with the Bureau of Plant Industry, U. S. D. A.) (Bowling Green Substation) Va.

Methods of conducting farm crop experiments. Ga.

Rod row planting. (Northwest Branch Station, Crookston) Minn.

Tillage investigations. Rate of sowing. Oreg.

General. (Cont.)

Tillage investigations. Time of sowing in fall and spring. Oreg.

Studies in crop cultural methods.--To determine the best method, rate, and distance of planting for various important crops. Ind.

Methods of harvesting test plats.--To study the accuracy of records secured by harvesting a portion of a plat in comparison with the yields secured from the entire plat. Md.

Harvesting hay by small squares as compared to harvesting entire plat as a means of determining yield. Ill.

Determination of the value of replicated plats in soil treatment. Ill.

Studies in plat technique. Conn. Storrs.

Collecting corn samples in various ways in order to determine the best method of collecting samples for moisture determination. Ill.

Effect of cropping plats previous to applying treatment. Ill.

Cultural experiments.--To determine the effect of grain, live stock, and diversified systems of farming on the continuous cropping of grain sorghums, cotton, and oats. Okla.

Cultural investigations with crops. (Upper Peninsular Substation) Mich.

Cultural methods for field crops. (South Mississippi Substation) Miss.

Cultural tests for different field crops for the Delta. (Delta Substation) Miss.

General farm crops trials. (Hettinger Substation) N.Dak.

General agronomic, breeding, selection, and variety tests of field and forage crops.--To develop better strains. Comparative tests to indicate the most promising of the introduced and developed varieties. Hawaii.

General agronomic, fertilizer, cultural and variety tests of edible root-crops.--To determine the best combinations of fertilizers, the best cultural methods, and the best varieties. Hawaii.

A test of 20 different crops and crop combinations used as catch crops at last cultivations or after corn harvest. Ohio.

Study of fertilizer effects on crop yields. Del.

General. (Cont.)

Fertilizer tests for field crops. (South Mississippi Substation) Miss.

Cover crops. W.Va.

High altitude crops. Colo.

Alfalfa.

Alfalfa experiments. (Staunton Substation) Va.

Alfalfa experiments. Its culture in Virginia. Va.

Sweet clover and alfalfa seedings. (Northeast Demonstration Farm, Duluth) Minn.

Alfalfa and sweet clover tests. (Southeast Demonstration Farm, Waseca) Minn.

Alfalfa and sweet clover trials. (Northwest Branch Station, Crookston) Minn.

Alfalfa growing experiments. (Hettinger Substation) N.Dak.

To secure the best method of growing and handling and especially the effect of drainage on the life of alfalfa; secondarily to determine the effect on yield of corn following the crop. (Sugar Station) La.

Factors influencing the securing of a good stand of alfalfa; effect of late and frequent cuttings; conditions causing winterkilling; comparison of hardiness of various varieties and strains; seed production; and factors causing yellowing of alfalfa. Wis.

Alfalfa breeding. Colo.

Alfalfa: Breeding work. Mich.

Alfalfa improvement by selection. Wyo.

Practical alfalfa breeding.--To secure a variety at least as hardy as the Grimm variety which can be easily distinguished from all other varieties. N.Dak.

The breeding and testing of pedigreed strains and types of alfalfa. (West Central Substation, Morris) Minn.

Alfalfa Strain tests. N.J.

Alfalfa experiments: (a) Tests of strains and varieties, (b) tests of fertilizers, manure, and lime, (c) relation of acidity (H-ion concentration) to growth, (d) methods of seeding. Conn. Storrs.

Alfalfa. (Cont.)

Development of strains of alfalfa and sweet clover with a minimum per cent of hard seeds. Wyo.

A study of the effect of inbreeding in smooth brome grass (Bromus inermis) and alfalfa (Medicago sativa). N.Dak.

A study of heritable characteristics in pure lines of alfalfa. Ariz.

Alfalfa inheritance in hardiness.--To obtain data as to the genetics of hardiness in alfalfa and thereby to lay a foundation for future practical breeding operations. N.Dak.

Breeding alfalfa adapted to sandy soil. (Spooner Substation) Wis.

Alfalfa production: Varieties, breeding, and harvesting. Ark.

Hardiness of alfalfa strains. Mont.

Alfalfa: A comparison of Grimm and Kansas Common for yield and hardiness. Ohio.

New alfalfa trials. (Hettinger Substation) N.Dak.

Alfalfa variety tests.--To find hardy alfalfas for pasture and hay. Alaska.

Alfalfa variety tests. (Holly Springs Substation) Miss.

Variety tests of alfalfa. S. Dak., (Lightfoot Substation) Va.

Alfalfa variety testing. Mich.

A test of the different species and varieties of alfalfa. Pa.

Alfalfa variety test.--To compare some of the more common varieties of alfalfa now found on the market with native-grown alfalfa and to ascertain if any of these much-talked-of strains are better suited to the irrigated valleys than those now being grown. N.Mex.

Alfalfa variety test.--To determine the variety of alfalfa best adapted to local conditions. (Dickinson Substation) N.Dak.

Variety tests of alfalfa for hay and for seed. (In cooperation with the Office of Western Irrigation Agriculture, U.S.D.A.) (Hermiston Substation) Oreg.

Alfalfa. (Cont.)

Alfalfa: Over State testing. Mich.

Alfalfa tests: Varieties and methods of seeding. Mont.

Alfalfa seed growing.--To establish varieties of hardy alfalfas by the use of Alaska grown seed. Alaska.

Source of alfalfa seed with reference to hardiness. Wyo.

Hard seed of alfalfa: (a) Field test as to viability, and (b) laboratory germination tests of hard seeds. Colo.

Culture tests with alfalfa. (Appomattox Substation) Va.

Culture experiments with alfalfa. (Lightfoot Substation) Va.

Methods of planting alfalfa. (North Central Branch Station, Grand Rapids) Minn.

Methods of planting.--To determine the best method of planting alfalfa for seed and hay production. (Dickinson Substation) N.Dak.

Studies of behavior of alfalfa. Culture methods for alfalfa when used for pasture or hay production. (Kearney Substation) Calif.

Alfalfa: Different methods of cultivation and date of seeding. Also variety tests. Iowa.

Cultivation and date of cutting alfalfa. Ill.

Winter v. spring seeding of alfalfa, sweet clover, and red clover. Ind.

Comparison of first, second, and third cuttings of irrigated alfalfa hay with each other and with corresponding cuttings of dry alfalfa as feeds for milk production. Wash.

Studies of the effects of cutting alfalfa hay at different stages of growth. Kans.

The effect of pasturing hogs upon the growth and stand of alfalfa. (West Central Substation, Morris) Minn.

Fertilizers for alfalfa. (Holly Springs Substation) Miss.

Fertilizer experiments with alfalfa. (Lightfoot Substation). Va.

Effect of more common fertilizers on yield and of inoculation by pure cultures on alfalfa under irrigation. N.Mex.

Alfalfa. (Cont.)

- To determine the advisability of manuring upland alfalfa. Okla.
- Sulphur fertilizer for alfalfa. Miss.
- Influence of sulphur on the growth of alfalfa. Ga.
- To determine the effect of sulphur on the yield of alfalfa. (Aberdeen Substation) Idaho.
- Irrigation of alfalfa. (Delhi Substation) Calif.
- Irrigation agriculture investigations. Winter irrigation of alfalfa. (Garden City Substation) Kans.
- Relation of time and amount of irrigation to seed production with alfalfa and sweet clover. (In cooperation with the Office of Western Irrigation Agriculture, U.S.D.A.) (Hermiston Substation) Oreg.
- Irrigation agriculture investigations. Quantity-of-water test with alfalfa. (Garden City Substation) Kans.
- Duty and effect of duty of water on Alfalfa. N.Mex.
- Vegetation house studies with alfalfa to be used as a check on the irrigation work under field conditions. Utah.
- Nurse crop versus no nurse crop for alfalfa. (North Central Substation, Grand Rapids). Minn.
- Relation of soil basicity to the growth of alfalfa. N.Y. Cornell.
- Comparison of alfalfa and sweet clover and cowpeas and soy beans as hay crops. (Bowling Green Substation) Va.
- Alfalfa seed certification. Ariz.

Barley.

- Breeding barley. N.Y. Cornell.
- Barley breeding work. Mich.
- Breeding work with barley. S.C.
- Barley breeding.--To develop earlier and better varieties for growing in Alaska. Alaska.

Barley. (Cont.)

Barley, rye, and oat breeding. Wis.

Barley improvement. Idaho.

Production of improved barley sorts. Minn.

The effect of selection in pure lines of barley. Minn.

Studies on inheritance in barley. Ill.

Cereals.--Selection and breeding with wheat, barley, and rye. (Union Substation) Oreg.

A study of the composition of pure strains of wheat, oats, and barley grown at various points in the United States. Minn.

Barley variety and breeding studies. Iowa.

Barley production: varieties, breeding, and cultural methods. Ark.

Cereal investigations. Varietal and cultural tests and breeding work with wheat, oats, barley, corn, and grain sorghums. (In cooperation with the Office of Cereal Investigations, U.S.D.A.) (Fort Hays Substation) Kans.

Variety testing, breeding, acclimatization and cultural studies of small grains.--To improve the quality and yield of small grains, including winter wheat, oats, spring wheat, rye, winter barley, and winter emmer. Nebr.

Barley: Variety tests and cultural experiments. Va.

Barley: Variety testing and head selection for yield and early maturity. Wyo.

Variety test of barley. (North Central Branch Station, Grand Rapids) Minn.

Variety tests with barley. S. C.

Variety tests of barley. S.Dak.

Barley variety tests.--To learn which varieties will mature and prove useful. Alaska.

Varietal experiments with barley.--To determine what varieties are best adapted to this part of the State. (Dickinson Substation) N.Dak.

Barley. (Cont.)

A study of the adaptation of the important varieties of spring barley for Missouri conditions.--To determine the adaptation of different standard varieties of spring barley to the various soil types of the State. Mo.

Grain growing on field scale.--To test barley, oats, wheat (spring and winter), winter rye, and buckwheat on a field scale, including also variety tests. Alaska.

Variety tests with wheat, oats, and barley. (Aberdeen and Sandpoint Substations) Idaho.

Variety test with wheat, oats, barley, and miscellaneous grains under high altitude conditions. (High Altitude Substation) Idaho.

A study of the performance of different varieties of spring wheat, barley, and emmer, and their adaptation to northern and central Illinois conditions. Ill.

Variety tests of oats, barley, flax, winter rye, soy beans, millet, buckwheat, and field peas. Minn.

Cereal variety tests.--To test new and standard varieties of spring wheat, oats, barley, and winter rye, as to yielding capacity, resistance to disease, and trade value as measured by milling and baking tests. N. Dak.

Variety trials with wheat, oats, and barley.--To test out the various strains of these crops to determine the best variety for this section. (Edgeley Substation) N.Dak.

Varietal trials of winter and spring grains, including wheat, oats, and barley. (In cooperation with the Office of Cereal Investigations, U.S.D.A.) Oreg.

Varietal tests with barley, oats, and wheat. (Union Substation) Oreg.

Varietal trials, including wheat, barley, oats, field peas, corn, and potatoes. (In cooperation with the Offices of Cereal Investigations and of Forage Crop Investigations, U. S. D. A.) (More Substation) Oreg.

Dry-land agriculture investigations. Varietal tests of corn, wheat, oats, and barley. (Garden City Substation) Kans.

Barley: Over State variety tests. Mich.

Studies of the resistance of barley to Helminthosporium sativum. Minn.

Studies of varietal resistance of wheat, barley, rye, and oats to root-rotting organisms. Minn.

Barley production and culture, and storage investigations. Iowa.

Barley. (Cont.)

Rate and date of seeding oats, wheat, barley, and rye. Minn.

Barley: Date of planting. Mich.

Date of seeding winter wheat, winter rye, and barley. (Northwest Branch Station, Crookston) Minn.

Date-of-planting experiments with barley, oats, and wheat. (Jackson Substation) Tenn.

Rate of seeding wheat, oats, barley, and corn. (Northwest Branch Station, Crookston) Minn.

Effect of stage of maturity at harvest upon the germination power of barley, wheat, and oats seed. Wyo.

Continuous cropping plats of oats, barley, and wheat, two tons manure each year per acre. (West Central Substation, Morris) Minn.

Barley increases to obtain a sufficient quantity of seed for distribution. Mich.

Study of the relation of the concentration of nutrient solutions to the growth of the barley plant in sand and water cultures. The relation of solution to absorption and forms of combination of important elements. Calif.

Studies in the classification of farm crops, including field beans, field peas, oats, barley, and millet varieties. Minn.

Breeding field crops, general.

Improvement of certain crops by selection and hybridization, cotton and corn receiving special attention. Tenn.

Development of disease-free strains of farm crops. (Upper Peninsular Substation) Mich.

Plant breeding.--To isolate, introduce or produce profitable strains of cotton, corn, oats, and other crops adapted to the Delta. (Delta Substation) Miss.

Crop improvement by seed selection and breeding.--To improve the seed of crops grown at the central and branch stations. N.C.

To develop strains of the respective crops best suited for Oklahoma conditions with reference to the purpose for which they are grown. Okla.

Seed crop improvement. Colo.

Brome grass.

Brome grass trials. (Valentine Substation) Nebr.

Brome grass isolation and fertilization of strains of brome grass. N.Dak.

A study of the effect of inbreeding in smooth brome grass (Bromus inermis) and alfalfa (Medicago sativa). N.Dak.

Variation studies with brome grass.--To secure data upon the variability and amount of correlation existing in the species in different geographic strains and between sibs and clones. N.Dak.

Brome grass: Yield studies of different clone types.--To secure data to aid in future practical breeding and selection. N.Dak.

Broom corn.

Broom corn.--To compare different types for the production of brush and to determine the best cultural methods for the crop under irrigation. N.Mex.

Buckwheat.

Buckwheat investigations, including variety tests, rate and date of seeding, and breeding for improvement. W.Va.

Variety tests of oats, barley, flax, winter rye, soy beans, millet, buckwheat, and field peas. Minn.

Grain growing on field scale.--To test barley, oats, wheat (spring and winter), winter rye, and buckwheat on a field scale; including also variety tests. Alaska.

The best time to sow buckwheat. Ind.

Cane (sugar).

Cane breeding experiments.--To increase the quantity of sugar per acre produced in the Island. Virgin Islands.

The production of improved varieties of sugar cane, particularly with respect to disease resistance. Porto Rico.

Cane (sugar).

Cane variety experiments.--To increase the quantity of sugar per acre capable of being produced in the Island. Virgin Islands.

Sugar cane varieties.--To secure a variety that will give a more profitable yield of sugar per acre. (Sugar Station) La.

Fertilizer experiments with sugar cane.--To determine the commercial effect of added plant food. (Sugar Station) La.

Determination of the effect of varying amounts and varying sources of potash on sugar content and growth of sugar cane. Fla.

Nitrogen economy in cane soils.--To determine the comparative utility of nitrate of soda, sulphate of ammonia and leguminous manures as sources of nitrogen for cane fertilization. Porto Rico.

Winter cover crops on fall planted cane.--To utilize the fall, winter, and early spring months to grow an extra leguminous crop in the regular rotation. (Sugar Station) La.

Cereals, general.* (See also specific cereals.)

Crop breeding, including cereals, cotton, and forage crops. Ga.

Investigations in cereal breeding. (West Central Substation, Morris) Minn.

Cereal breeding investigations. (Southeast Demonstration Farm, Vasoca) Minn.

Cereal breeding. Utah.

Investigations in cereal breeding. A comparison of various means of determining probable errors, and value of such probable errors as a means of discarding low-yielding varieties. Minn.

Improvement of the small grains. Ill.

Inheritance study of cereals. A study of the laws of inheritance with reference to specific characters. Wash.

Grain breeding by straight selection and cross hybridization followed by selection. Wis.

Crop improvement by mass and individual plant selection, including small grains, corn, grain sorghums, and peanuts. Tex.

Cereals, general. (See also specific cereals.)

Hybridization of cereals. S.Dak.

Small grain investigations. Cereal breeding and selection in the nursery.
(Aberdeen Substation) Idaho.

Cereal investigations. Selection, propagation, and testing of pure lines of
promise. Va.

The increase and fixation of desirable properties in cereals. Ohio.

Pedigree grain development. (Upper Peninsular Substation) Mich.

Correlation of characters in grain. Colo.

Variety test of cereals in pure line plats. Selection of varieties and in-
crease of pure line seed of best varieties. N.Mex.

Variety tests of grain. (North Montana Substation) Mont.

Variety test of small grains. (Southeast Demonstration Farm, Waseca) Minn.

Variety tests with small grains. Miss.

Variety test of grains. (Northeast Demonstration Farm, Duluth) Minn.

Grain varieties. Utah.

Commercial grain testing to determine adapted varieties. (Upper Peninsular
Substation) Mich.

Irrigation agriculture investigations. Varietal tests of sorghum, corn, and
small grains. (Garden City Substation) Kans.

Small cereal investigations. Varietal trials of winter and spring grains,
including wheat, oats, and barley. (In cooperation with the Office of
Cereal Investigations, U.S.D.A.) Oreg.

Variety tests of grain and forage. Mont.

Varietal tests of cereal and forage crops. (Tribune and Colby Substations)
Kans.

Variety test of cereals for the production of hay. (High Altitude Substation)
Idaho.

Cereals, general. (Cont.)

Variety tests of cereal grains on dry land. (Judith Basin Substation) Mont.

Variety testing, breeding, acclimatization, and cultural studies of small grains.--To improve the quality and yield of small grains, including winter wheat, oats, spring wheat, rye, winter barley, and winter emmer. Nebr.

Grain varietal tests: Test of furrow method of seeding wheat, cultivation tests of corn, etc. Kans.

Grain investigations.--To test many varieties of grain, especially the hybrids produced at Rampart, to ascertain adaptability to the Matanuska Valley. Alaska.

Small grain investigations. Variety tests with wheat, oats, barley, and miscellaneous grains under high altitude conditions. (High Altitude Substation) Idaho.

Cereal varietal and cultural investigations. Wash.

Varietal and cultural tests with winter and spring grains. Ariz.

A varietal and cultural test of grain, grasses, and miscellaneous crops. Ariz.

Seeding grain mixtures. (Northwest Branch Station, Crookston) Minn.

Methods of seeding cereal and forage crops. (Tribune Substation) Kans.

Time and rate of sowing winter cereals. Ga.

Dates and rates of seeding small grains. (Staunton Substation) Va.

Grain mixtures. Mont.

Tests of mixtures of small grains. (Churchville and Alfred, N.Y.) N.Y. Cornell.

Top-dressing experiments with winter cereals, corn, and cotton. Ga.

Seed treatment materials and methods. Cereals and potatoes. Oreg.

Lodging in cereal crops. A study of the causes of lodging and cultural practices related thereto. Ohio.

Relation of soil moisture, structural development and yield of small grain. Colo.

Cereals, general. (Cont.)

Harvesting, threshing, and grain handling studies: (a) Efficient methods of harvesting grain, (b) efficient methods of handling grain before threshing, (c) the most efficient threshing methods used, (d) relative merits of large and small threshing rigs used, (e) the relative merit of the custom and cooperatively owned outfits, (f) the best method of handling grain after threshing, (g) the financing and management of cooperative threshing rings. Ill.

Harvesting small grain by small squares and determining yield, compared to harvesting the entire plat. Ill.

Miscellaneous grain investigations, including rye and emmer. Idaho.

Clover, etc. (See also Legumes)

Clover investigations.--To study the various factors that affect the production of clover under the conditions of this part of the country, and especially to determine the reasons for clover failures and to develop practical methods of overcoming them. Ind.

Red, mammoth, alsike, and white clover investigations. Iowa.

Breeding red clover. Iowa.

Red clover. Improvement of red clover in regard to yield, vigor, etc., under various environmental conditions. Ky.

The production of an improved red clover for northern Minnesota. (North Central Experiment Farm, Grand Rapids) Minn.

Clover: (a) Plant selection of individuals resistant to disease, (b) a study of the progeny of these plants as to resistance. Ohio.

Red clover: A study of the adaptation of improved strains of red clover, together with a study of diseases. (In cooperation with the U.S.D.A.) Mich.

Clover production: Varieties, breeding, and harvesting. Ark.

Variety test of clovers. (North Central Branch Station, Grand Rapids) Minn.

Varietal trials with clover. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.) Oreg.

A comparison of the several species and varieties of clover as to yield and hardiness. Ohio.

Clovers, etc. (Cont.)

Variety tests of clover for seed and forage production. Wis.

A test of foreign clover, including Bohemian, Chilean, German, Hungarian, and Italian red clovers, N.H.

A comparison of methods and times of seeding clover. Chic.

Clover seeding experiments. A study of time and methods of seeding. Ky.

Studies in crop cultural methods. Winter v. spring seeding of red clover, alfalfa, and sweet clover. Ind.

Medium red clover as a hay and seed crop. Ill.

Testing clovers for yields of hay. Va.

Testing varieties of grasses and clovers both for forage and for hay as to their adaptability to local climate and soil conditions. (Starkville, Holly Springs, and Raymond Substations) Miss.

Grasses and clovers for forage and permanent pasture, including Bermuda grass and bur and crimson clover. (Holly Springs Substation). Miss.

Red clover: Time of clipping and other factors affecting seed production. Mich.

Trials to determine the best method of securing stands of red clover. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.) Oreg.

The effect of straw mulch applied to wheat upon the yield of wheat and the following clover. Ohio.

The difference between marmoth red clover and cormor red clover. N.J.

Mammoth clover as a seed crop and as a soil improver. Ill.

Alsike clover as a hay and as a seed crop. Ill.

Clover utilization. (Northeast Demonstration Farm, Duluth) Minn.

The impairment of clover seedlings. Ohio.

Species of clover. Ala.

Production trial of Ladino clover. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.) Oreg.

Clover, sweet.

Sweet clover investigations. Pa.

Sweet clover growing experiments. (Fettinger Substation) N.Dak.

Sweet clover investigations.--To study the adaptability of different regional strains of white and yellow blossomed sweet clover to North Dakota conditions. To study the influence of nurse crops upon forage and seed production and to determine the best rates and dates of seeding. To compare differences in different strains of yellow sweet clover; to compare yellow and white sweet clover as to value for hay purposes; to study the process of silage production from sweet clover. N.Dak.

Alfalfa and sweet clover tests. (Southeast Demonstration Farm, Waseca; and Northwest Branch Station, Crookston) Minn.

Strain tests with biennial sweet clovers. Iowa.

Development of strains of sweet clover and alfalfa with a minimum per cent of hard seeds. Wyo.

Comparison of annual and biennial varieties of sweet clover. Ky.

A comparison of annual and biennial sweet clovers. Minn.

Sweet clover variety and species test.--To determine the best variety to plant for hay and seed production. (Dickinson Substation) N.Dak.

Variety tests of sweet clover for hay and for seed. (In cooperation with the Office of Western Irrigation Agriculture, U.S.D.A.) (Hermiston Substation) Oreg.

Medicago variety test, including melilotus. Ala.

Rows versus broadcast seeding. A comparison of the relative value of seeding sweet clover in rows and broadcast for hay and seed production. (Dickinson Substation) N.Dak.

Sweet clover investigations.--To determine both the time of seeding and method of preparing the seedbed in growing sweet clover. Okla.

Winter v. spring seeding of sweet clover, alfalfa, and red clover. Ind.

Rye and sweet clover trials.--To determine the wisdom of the practice of seeding sweet clover in the fall with winter rye in different sections of the State. (Langdon Substation) N.Dak.

Clover, sweet. (Cont.)

Sweet clover seeding with a nurse crop under dry land conditions.--To determine the relative value of small grain nurse crops for sweet clover.
(Dickinson Substation) N.Dak.

Sweet clover and alfalfa seedings. (Northeast Demonstration Farm, Duluth)
Minn.

Cultural test with sweet clover. Idaho.

Relation of time and amount of irrigation to seed production with alfalfa and sweet clover. (In cooperation with the Office of Western Irrigation Agriculture, U.S.D.A.) (Hermiston Substation) Oreg.

Sweet clover.--To study time and height of cutting and its effect on hay.
Mich.

Influence on vigor of growth and permanency of stand of clipping sweet clover at different dates during the fall compared with allowing it to stand through the winter. Ill.

Effect of clipping sweet clover at different stages of growth. Ky.

Value of sweet clover as a forage crop for Wisconsin. Wis.

Sweet clover as a hay and seed crop. Ill.

Comparison of alfalfa, sweet clover, cowpeas, and soy beans as hay crops.
(Charlotte Court House Substation) Va.

Sweet clover as a crop for soil improvement in a 3-year and 4-year rotation.
Ill.

Sweet clover for nitrate production in field soils, sweet clover being used as a green manure. Ill.

Determining sweet clover plants per acre, their average height, and amount per acre when spring plowed as a green manure crop. Ill.

Hubam clover. Del.

Annual (Hubam) and biennial sweet clover. Ohio.

Hubam clover breeding. Iowa.

Hubam clover.--To determine whether or not any perennial sweet clover can be developed. Mich.

Clover, sweet. (Cont.)

Hubam clover. Over State testing. Mich.

Seed increase and distribution of Hubam clover seed. Iowa.

Seed production of Hubam clover. Iowa.

Forage production of Hubam clover. Iowa.

Soil studies with Hubam clover. Iowa.

Hubam clover analysis. Iowa.

Chemical composition of Hubam (annual white sweet clover). Iowa.

Studies of Canadian Albotrea (biennial yellow-blossomed sweet clover).
Wis.

Sweet clover.--To study the distribution of the various chemical constituents
in the sweet clover plant and to compare the distribution with that in the
clover and alfaifa plant. N.Dak.

Corn.

Genetic studies.

Genetic studies of corn. N.Y. Cornell.

Mendelian studies with corn. N.Y. Cornell.

Genetic analysis of maize, including: (a) The inheritance of Mendelian
characters in maize, (b) the relative frequency of crossing over in micro-
sporogenesis and megasporogenesis, (c) the occurrence and frequency of
mutation in the factor of pericarp color in maize, and (d) competition
among male gametes in maize. Mo.

Genetic studies in corn, with special reference to linkage. N.Y. Cornell.

A study of inheritance of characters in corn with particular regard to their
linkage relations and location of factors in the chromosomes. Conn. State.

Correlation studies with corn. Iowa.

Relation of physical characters of corn to yield. Del.

A study of inheritance of certain characters of corn. Minn.

Corn. (Cont.)

Genetic studies. (Cont.)

The inheritance of prominent ear and stalk characters and their relation to yield, namely: (a) shape of ear, (b) length of ear, (c) number of rows per ear, (c) filling of tip, (e) indentation of kernel, (f) height of ear in stalk, (g) height of plant, and (h) proportion of grain to cob. Ohio.

Inheritance of barrenness in corn. S.C.

Corn breeding.--To determine the characteristics of parent strains that are essential to the production of high-yielding hybrid progenies. Miss.

F₁ generation yield studies.--To find to what extent, if any, the F₁ generation will outyield and mature in advance of the respective parents and to fix upon those hybrids showing the maximum amount of such changes. N.Dak.

A study of inbred strains of corn, to determine whether or not self-fertilization causes reduction of vigor after homozygosis is reached, and to study the inheritance of abnormalities with particular reference to sterility. Conn. State.

Corn breeding.--To secure a comparison of the yields of individual ears of corn and to determine the relation between the strength of germination and yield. La.

The effect of selection of certain chemical and physical characters of the corn plant. Ill.

Breeding experiments.

Corn breeding. Ind., N.J.

Corn breeding investigations. (Southeast Demonstration Farm, Waseca) Minn.

Corn breeding work. Mich., (Northeast Demonstration Farm, Duluth) Minn.

Corn breeding and improvement. Idaho.

Corn production: Breeding. Ark.

Breeding experiments with corn. Ala.

Breeding work with corn. S. C.

Corn. (Cont.)

Breeding experiments. (Cont.)

Breeding experiments with wheat, oats, corn, and sorghums. Kans.

Corn breeding. A study of varieties. Pa.

Corn breeding. Improvement of corn for use on the Island. Virgin Islands.

Corn improvement.--To increase the yield of corn on the Island. Virgin Islands.

Practical corn breeding, to produce a productive variety as early as Gehu, with ears sufficiently high to harvest easily and to produce an early variety of popcorn of superior value. N.Dak.

Corn selection. (Northwest Branch Station, Crookston) Minn.

Corn production, selection, breeding, and variety adaptation. Md.

Crop improvement by mass and individual plant selection, including small grains, corn, grain sorghums, and peanuts. Tex.

Selection and breeding of corn for eastern Idaho. (Aberdeen Substation) Idaho.

Corn improvement by self-pollination. (North Platte Substation) Nebr.

Selfing corn plants of Northwestern Dent and other varieties.--To isolate strains of pronounced type to serve as the basis of future practical breeding. N.Dak.

Breeding corn by means of selection in self fertilized lines. Minn.

To determine the value of various methods of saving and storing seed, the value of F_1 varietal crosses, and to study selection in self-fertilized lines of Silver King. Minn.

Suckering of corn.--To determine the effect upon productiveness, type, sucker-producing tendencies, etc. of continuously selected seed from suckering stalks. Ind.

Degree of close breeding in maize.--A study of the degree to which close breeding may be practiced with safety in fixing selected types. Nebr.

Hybridization studies with corn. Iowa.

The effect upon yield of crossing the same variety and distinct varieties. Ohio.

Corn. (Cont.)

Breeding experiments. (Cont.)

Physiological studies in certain abnormal types of corn (from plant breeding crosses). N.Y. Cornell.

Improvement of certain crops by selection and hybridization, cotton and corn receiving special attention. Tenn.

Selection studies with corn. Iowa.

Effect of continuous selection on yield in corn. Ill.

Comparative test of various methods of selection. Minn.

A system for planting corn with special reference to the study of continuous selection and hybridization. (Brookings and Vivian Substations) S.Dak.

Corn investigations.--To establish a system of corn breeding to produce an improved variety for this section of the State. (Caldwell Substation) Idaho.

Ear-to-row breeding work with corn. S.C.

Corn improvement by selection, ear-to-row method. (North Central Branch Station, Grand Rapids) Minn.

Testing of individual ears in ear-to-row tests. Ohio.

Corn breeding.--To isolate by progeny, row and mass, selection better yielding varieties. Miss.

Corn selection and culture. Selection from mass, ear-row selection, and selection from area where backward or unproductive stalks are detasseled. R.I.

Corn increase plats to increase remnants of ears which breed best in ear-row plats. Mich.

To obtain higher yielding strains of native corn. Porto Rico.

Breeding a high yielding, heat resistant field corn. Ariz.

Corn breeding: (a) Studies on development of cold-resistant corn and (b) development of early maturing varieties for northern Wisconsin. Wis.

Corn improvement tests.--To develop early maturing strains with ears high enough for harvesting with a corn binder. (Dickinson Substation) N.Dak.

Corn. (Cont.)

Breeding experiments. (Cont.)

Corn improvement.--To procure an earlier maturing, lower growing strain of corn for Guam; to increase the yield and quality, if possible, along with above improvement, of the corn grown here. Guam.

Crossing improved corn with Hopi maize.--To produce a variety of acclimatized corn which can be planted deep in the moist subsoil and germinate successfully. Virgin Islands.

The raising of a strain of corn, which is an improvement on yield, disease resistancy, and uniformity of maturing. Porto Rico.

Breeding corn for yield and disease resistance. Ky.

Breeding for disease resistance in corn. Ill.

Corn breeding.--To establish a pure yellow as the decendant of a cross between the yellow strain of the Calhoun Red Cob and Stewart's Yellow Dent. La.

To secure a white flint corn that is equal or superior to Yellow Creole. (Sugar Station) La.

Breeding of superior Flint corn seed. Distinct strains of Flint corn crossed for hybrid seed. Maine.

Breeding corn for protein content with special reference to the yield of protein per acre. S. Dak.

Varietal experiments.

Corn variety tests. Ala.

Varietal trials of corn. Del.

Variety tests of corn. Ky., S.Dak., (Substations) Va.

Variety test of corn. (North Central Branch Station, Grand Rapids) Minn.

Variety tests with corn. (Starkville and Holly Springs Substations) Miss., S.C., Wyo.

Corn experiments. Variety test, sweet and ensilage corn. Me.

Corn variety test. W. Va.

Corn. (Cont.)

Varietal experiments. (Cont.)

Corn production. Variety studies. Ark.

Variety studies with corn. Iowa.

Late planted corn variety test. Ala.

Corn varieties for corn and silage. (Huntley Substation) Mont.

Variety and strain tests of corn for grain and ensilage. Conn. Storrs.

Variety tests with corn for grain and silage; spacing tests on grain varieties. (North Louisiana Substation) La.

Varietal experiments.--To determine what varieties are adapted to this climate for grain and silage production. (Dickinson Substation) N.Dak.

A test of varieties commonly grown in the State and of pedigree strains produced by the station. Ohio.

Variety test of corn.--To determine yields of different varieties of corn as shown by competitive tests. Okla.

Work with flint corn. Variety tests and selection and breeding to secure new and improved strains. (Highmoor Substation) Me.

Varietal corn test.--To compare types and varieties of corn suited to North Dakota as to their yields of dry matter and feeding value. N. Dak.

A detailed study of the performance of early, medium, and late varieties of corn suited to the various sections of Illinois. Ill.

Corn variety testing to compare the yielding power of different varieties and strains. Mich.

Corn varieties and cultural methods. (Judith Basin Substation) Mont.

A study of the varieties and methods of culture of Indian corn and the various sorghums. Ariz.

Variety and cultural tests with corn. Va.

Variety tests of field corn and velvet beans. Fla.

Varietal tests of corn, wheat, oats, and barley. (Garden City Substation) KKans.

Corn. (Cont.)

Varietal experiments. (Cont.)

Varietal tests of sorghum, corn, and small grains. (Garden City Substation) Kans.

Variety tests, including corn, cotton, soy beans, cowpeas, and mung beans. (North Louisiana Substation, Calhoun) La.

Varietal trials, including wheat, barley, oats, field peas, corn, and potatoes. (In cooperation with the Offices of Cereal Investigation and of Forage Crop Investigations, U.S.D.A.) (Moro Substation) Oreg.

Variety trials with various farm crops, such as corn, wheat, oats, soy beans, cotton, etc. Tenn.

Cultural experiments.

Tillage experiments with both corn and cotton.--To determine the best depth of plowing and cultivation. (Jackson Substation) Tenn.

Soil preparation experiments for corn. Tenn.

Methods of planting corn. (North Platte and Valentine Substations) Nebr.

Method of planting and fertilizing corn. Ga.

Corn and velvet beans -- different methods of planting. La.

Corn cultural tests. S. C.

Corn production. Cultural methods. Ark.

Cultivation tests of corn; test of furrow method of seeding wheat; grain varietal tests. Kans.

Cultural methods for corn.--To test methods of preparing the ground, applying the water, and cultivating the crop. N. Mex.

Culture methods for corn. Spacing, also scraping, as compared with cultivation at different depths, no cultivation as compared with different number of cultivations, and a comparison of planting on a well prepared seed bed and on rough ridge. (Holly Springs and Delta Substations) Miss.

Corn. (Cont.)

Cultural experiments. (Cont.)

Cultural experiments with corn, including the rate of planting, methods of preparing sod land and stubble land, depth of plowing and subsoiling, and methods of cultivation and planting: (a) Rate of planting, (b) methods of preparing sod and stubble land for corn, (c) depth of plowing and subsoiling, (d) methods of cultivation, and (e) methods of planting. Mo.

Effect of different methods of cultivation on yield of corn. La.

Rate and date of seeding.

Date-of-planting trials with corn. Tenn.

Effect of time of planting on yield of corn. Ia.

Effect of early and late planting on maturity. P.I

Phenological observations as related to time of planting corn.--To determine the relation between certain common periodical annual events, such as the budding and flowering of trees to the best time to plant corn. Ind.

The relation of date of planting and stand to yield of corn. Ohio.

Rate of planting experiments with corn. Tenn.

Corn spacing experiments. Miss.

Spacing test with corn. Ga

Distance apart to plant corn. Wis.

Rate of planting corn for grain and for silage. (North Central Substation, Grand Rapids) Minn.

Rate of planting experiments with both corn and cotton. Tenn.

Rate of seeding wheat, oats, barley, and corn. (Northwest Branch Station, Crookston) Minn.

A comparison of distance apart to plant corn, corn and soy beans, and sun-flowers. Minn.

Fertilizer experiments.

Corn fertilizers. (North Louisiana Substation, Calhoun) La.

Corn. (Cont.)

Fertilizer experiments. (Cont.)

Fertilizer experiments. Ala.

Fertilizer experiments with corn. (Holland, Martinsville, and Staunton Substations). Va.

Time of applying nitrate of soda. Ala.

Time of application experiments with nitrate of soda for: (a) corn, and (b) cotton. (Jackson and Murfreesboro Substations) Tenn.

Various forms of nitrogen for corn. Also different times of application of nitrate of soda to corn. Miss.

Use of various amounts of nitrate of soda on corn or bluegrass soils. Ky.

Experiments with sources of nitrogen. Ala.

Sources of nitrogen for corn. Ala.

Corn, sources of phosphate. Ala.

Investigations of the availability of soil potash for corn. Conn. Storrs.

A comparison of a mixture of cottonseed meal and acid phosphate applied at different times of growth, with and without organic matter, to continuous growing of corn. La.

Continual growth of field corn; without cover crop or organic matter supplied artificially; no manure used; phosphorus and potassium alike; 20 pounds nitrogen applied to one section and 60 to other sections. R.I.

The effect of different amounts and different methods of applying commercial fertilizers to the corn crop.--To determine the effect of adding various amounts of commercial fertilizer to corn both in the hill or drill and over the entire soil surface upon the resulting crop. Mo.

Triangular fertilizer experiments with cotton, corn, and wheat, followed by cowpeas, grown in rotation. Ga.

Rotation and fertilizer experiments with corn, sweet potatoes, and peanuts.--To determine the production of corn, sweet potatoes, and peanuts in rotation and using various forms of commercial fertilizer and lime. Fla.

Lime experiments with corn. Ala.

Corn. (Cont.)

Fertilizer experiments. (Cont.)

Top-dressing experiments with winter cereals, corn, and cotton. Ca.

Silage corn.

Silage crop investigations. Variety tests of corn for the production of silage. (Aberdeen Substation) Idaho.

A comparison of different varieties of corn for silage purposes. Idaho.

Corn investigations.--To determine the yielding capacity of introduced varieties as compared with those locally grown for the production of silage. (Caldwell Substation) Idaho.

Ensilage corn variety tests.--To determine the relative yield, maturity, and adaptability of the varieties in the different sections of the State and to compare them with other local or favorite varieties. N.H.

A comparison of early, medium, and late maturing types of corn for silage, on the basis of milk produced per acre. Conn. Storrs.

Silage corn varieties and legumes to climb on them. F.I.

Cultural tests of corn for silage production. Idaho.

Date of planting corn for silage. Early v. late. (In cooperation with the Bureau of Plant Industry, U.S.D.A.) Conn. Storrs.

A test of the practicability of growing soy beans with corn for ensilage. Pa.

Miscellaneous.

Corn investigations. W.Va.

Cereal investigations. Varietal and cultural tests and breeding work with wheat, oats, barley, corn, and grain sorghums. (In cooperation with the Office of Cereal Investigations, U.S.D.A.) (Fort Hays Substation) Kans.

Corn environmental experiment.--To determine the effect on yield and earliness from planting seed obtained from different sources. (Dickinson Substation) N.Dak.

Corn. (Cont.)

Miscellaneous. (Cont.)

The relation of the environment of the mother plant to the yielding ability of the progeny. Ohio.

Corn investigations.--To determine adaptability of Indian corn for grain and forage production, and to determine the yield of dry matter per acre at different stages in the development. N. Dak.

Effect of companion crops on yield of corn. Ky.

Effect of companion cropping of corn with legumes. S. C.

Effect of planting corn with different legumes. Ga.

Growing corn and soy beans together. Ky.

Investigation of associated growth of corn and soy beans. Wis.

Continual growth of field corn, with legumes as cover crops. R.I.

Continual growth of field corn, with rye cover crop. R.I.

Corn on alfalfa sod. N.J.

Alfalfa and clover.--To secure the best method of growing and handling, and especially the effect of drainage on the life of alfalfa; secondarily to determine the effect on yield of corn following the crop. (Sugar Station) Ia.

Residual effects of other crops on the corn crop. (Scottsbluff Substation) Nebr.

Continual growth of field corn, with straw plowed in. P.I.

A comparison of the most important grain sorghums with corn for grain and forage production. Mo.

Sunflower v. corn trial.--To determine the value of sunflowers as compared to corn in the production of fodder. (Langdon Substation) N.Dak.

Comparison cropping of corn and soy beans. Ill.

Corn production and storage investigations. Storage and shrinkage studies. Iowa.

Changes taking place in corn and corn-meal when stored under different conditions. Ky.

Corn. (Cont.)

Miscellaneous. (Cont.)

Principles governing growth and maturity in corn. Va.

A study of pollen distribution as affected by: (a) wind direction and velocity, (b) condition of atmosphere, and (c) distance from field. Chic.

Best laboratory medium for the germination of corn. N.J.

The relation of the time of harvest of corn to: (a) Yield of shelled corn and fodder, (b) germination and yielding capacity of seed, and (c) amount of infection of the seed with pathogenic organisms. Chic.

A study of the influence of soil management, previous cropping, and time of planting on the field performance of corn grown from nearly disease-free seed and from seed primarily infested with different types of disease. Ill.

Studies in diseased and disease-free corn. Ill.

To determine the comparative resistance of various self-fertilized strains of corn to various root-rotting organisms. Minn.

The manner of reaction of various pure lines of corn to smut. Minn.

Analysis (chemical) of corn for selection of high and low protein strains. Minn.

Corn multiplication plots to raise seed for general distribution. Mich.

Cost of production. (See Rural economics - Cost of production.)

Cotton.

Fundamental study of inheritance in cotton. Tex.

A study of heredity and development in the cotton plant. Miss.

The genotypic constitution of certain varieties of cotton.--To study the mode of inheritance and association of economic qualities in cotton. (In cooperation with the U.S. Department of Agriculture) N.C.

A study of the inheritance of fruit characters in cotton. Ark.

Cotton production: Breeding and selection. Ark.

Cotton selection and breeding. La.

Cotton. (Cont.)

Cotton breeding experiments.--To improve the quality, quantity, and disease resistance of the locally grown Sea Island Cotton. Virgin Islands.

Breeding improved varieties of cotton. Miss.

Breeding work with cotton (Cleveland and Cook cotton used). S.C.

Crop breeding, including cereals, cotton, and forage crops. Ga.

Improvement of certain crops by selection and hybridization, cotton and corn receiving special attention. Tenn.

Breeding experiments with cotton.--To include relation between size of seed and viability, productiveness, degree of relationship between the parents of the seed, etc. Ala.

Cotton breeding.--To make selections within the Pima variety in order to improve this in earliness, percentage of lint, yield, and form of plant. Also crossings with Pima and various short-staple varieties. Ariz.

The selection of wilt resistant strains of cotton for Arkansas. Ark.

Cotton production: Disease resistance. Ark.

Determination of the amount of natural crossing in cotton. Miss.

Cotton variety tests. Ala., S.C.

Cotton production: Variety studies. Ark.

Variety tests with cotton. La., (Starkville and Holly Springs Substations) Miss. (Holland Substation) Va.

Cotton variety tests. Ala.

Variety tests of long staple cotton. Ala.

Cotton variety test: (a) To determine whether or not cotton can be successfully grown in the irrigated valleys, (b) to ascertain, as nearly as possible, the best varieties under the climatic conditions, (c) to compare the short staple varieties and the long staple varieties. N.Mex.

Variety tests of cotton.--To determine the yields of different varieties of cotton as shown by competitive tests. Okla.

Variety trials with various farm crops, such as corn, wheat, oats, soy beans, cotton, etc. Tenn.

A study of the standard commercial varieties of cotton. Miss.

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Cotton. (Cont.)

Variety tests, including corn, cotton, soy beans, cowpeas, and mung beans.
(North Louisiana Substation, Calhoun) La.

A study of the adaptation of the important varieties of cotton for the south-east Missouri lowlands. Mo.

Cotton variety experiments.--To determine practical value, including profit of cotton under Guam conditions, to test out different varieties and types of cotton, and to improve varieties and types found best adapted. Guam

Cotton wilt test. The testing of various commercial varieties on badly wilt-infected soil. Miss.

Study of the acclimatization or adaptation to local conditions of the cotton plant. Miss.

Varietal and cultural tests with cotton. Ariz.

Cotton production: Cultural methods. Ark.

Cultural methods for cotton. (Holly Springs and Delta Substations) Miss.

Cotton culture and spacing tests. S.C.

Cotton spacing experiments. Miss.

Spacing of cotton and single stalk method of culture. Ga.

Rate-of-planting experiments with both cotton and corn. (Jackson Substation) Tenn.

Rate of distribution of seed and time of thinning cotton. Tex.

Thinning experiments with cotton. (Jackson Substation) Tenn.

Tillage experiments with both cotton and corn.--To determine the best depth of plowing and cultivation. (Jackson Substation) Tenn.

Fertilizers for cotton. (North Louisiana Substation, Calhoun) La.

Cotton fertilizer experiments. Ala.

Fertilizer experiments with cotton. (Holland Substation) Va.

Cultural experiments with cotton, including fertilizer tests.--To determine the value of different mineral elements of plant food alone and in combination upon the yield and quality of cotton produced. Mo.

Triangular fertilizer experiments with cotton, corn, and wheat, followed by cowpeas, grown in rotation. Ga.

Cotton. (Cont.)

Sources of nitrogen experiments. Ala.

Source and amounts of nitrogen in cotton fertilizer. Ga.

Various forms of nitrogen for cotton. Miss.

Time of applying nitrate of soda. Ala.

Time of application experiments with nitrate of soda for cotton and corn.
(Jackson and Murfreesboro Substations) Tenn.

Sources of phosphate for cotton. Ala.

Tests of various carriers of phosphorus as applied to cotton. Miss.

Sources of phosphorus in fertilizers for cotton. (Holland Substation) Va.

Tests on time of applying potash to cotton. S.C.

Rate of applying fertilizers to cotton. Ala.

Rate of application of fertilizer to cotton. Ga.

Test on time and method of applying fertilizer to cotton. S.C.

Lime experiments with cotton. Ala.

Top-dressing experiments with winter cereals, corn, and cotton. Ga.

Best time to apply and kind of top-dresser to use on cotton.--To determine the best time to apply soluble nitrogen as a second application to cotton, also comparing the carriers most commonly used. N.C.

Place effect of cotton.--To study the effect on yield, length of lint, quality of lint, and per cent of oil produced in different cotton growing regions by planting from the same lot of seed. La.

Place effect studies with cotton.--To study the place effect upon cotton qualities when seed of the same strain has been grown in different localities. N.C.

Effect of environmental factors upon time and rate of blooming in the cotton plant. Ga.

Climatic and soil effects upon length of cotton fiber. Ala.

Relation of oil and nitrogen content of cottonseed to other characters. Ark.

Factors influencing the oil content of cotton seed. S. C.

Cotton. (Cont.)

Biochemical changes in cotton seed in storage. Ark.

Chemical changes which take place in cotton seed during growth, and factors affecting same. Orin.

The effect of conditions of harvesting and storage on the vitality of cotton seed. Ark.

Cotton spraying. Ala.

Dropping of cotton bolls. Determination of causes with special reference to those apparently parasitic. Ark.

Cotton marketing and warehousing survey. Study of the economic soundness and relative advantages of all towns in the State as marketing and storage points; analysis of cotton production and point of manufacture; analysis of cotton manufacture in reference to point of production. N.C.

Cowpeas.

To isolate more adaptable and higher yielding strains of cowpeas, soy beans, and mung beans for Porto Rico. Porto Rico.

Variety test of cowpeas. (Substations) Va.

Cowpeas: Variety tests for seed. Ala.

Variety tests of cowpeas.--To determine the yield of different varieties of cowpeas, as shown by competitive tests. Okla.

Variety tests, including corn, cotton, soy beans, cowpeas, and mung beans. (North Louisiana Substation, Calhoun) La.

Tests of varieties of cowpeas for seed and hay. Md.

Cowpeas: Varieties, culture, and yields of hay and grain. Va.

Rate of seeding Sudan grass and cowpea mixture for hay. Ala.

Comparison of cowpeas and soy beans for hay and seed production. Mo.

Comparison of alfalfa and sweet clover and cowpeas and soy beans as hay crops. (Bowling Green Substation) Va.

Cowpeas. (Cont.)

To determine the best method of planting grain sorghums and cowpeas together. Okla.

Triangular fertilizer experiments with cotton, corn, and wheat, followed by cowpeas, grown in rotation. Ga.

Green manuring experiments, with cowpeas in particular. Tenn.

Green manuring experiments with cowpeas, to determine the effect of cowpeas when turned under on nonlegumes immediately following. (Jackson Substation) Tenn.

To determine the influence of phosphoric acid on cowpeas following oats. (Calhoun Substation) La.

The effect of the cowpea crop on soil fertility with special regard to: (a) a wheat crop following, (b) a corn crop following. A study of the nitrogen content of the soils is included. Tenn.

Dry-land crops.

Dry-land crops. (Scottsbluff Substation) Nebr.

General crop tests on dry land. (Judith Basin Substation) Mont.

Investigations at dry farm stations. Utah.

Miscellaneous field studies, including dry-farm investigations.--To investigate crops suited to dry farming in high altitudes. Utah.

Dry-land agriculture investigations. Spacing tests with milo. (Garden City Substation) Kans.

Dry-land agriculture investigations. Varietal tests of corn, wheat, oats, and barley. (Garden City Substation) Kans.

Field crop investigation under both dry farming and irrigation. Varietal trials with wheat, oats, barley, rye, field peas, corn, alfalfa, sunflowers, grasses, potatoes, and other minor crops. (In cooperation with the Office of Cereal Investigations, U.S.D.A.) (Burns Substation) Oreg.

Dry farm studies, including: (a) Cereal breeding, (b) rotations, (c) soil fertility, (d) varietal trials, (e) cultural tests, (f) cropping systems, (g) miscellaneous experiments (rate and date of seeding winter wheat), and (h) soil moisture studies. (Nephi Substation) Utah.

Dry land crops. (Cont.)

Field crop investigations under both dry farming and irrigation. Date and rate of seeding investigations with wheat, oats, barley, rye, field peas, corn, alfalfa, sunflowers, grasses, potatoes, and other minor crops. (In cooperation with the Office of Cereal Investigations, U.S.D.A.) (Burns Substation) Oreg.

Studies at the Sulphur Spring Valley dry farm, including variety tests, rate and date of seeding tests, method of planting tests, inoculation of legumes-- tests designed to determine whether dry farming is feasible in this particular locality. Ariz.

Studies at the Prescott dry farm, including variety tests, rate and date of seeding tests, method of planting tests, inoculation of legumes -- tests designed to determine whether dry farming is feasible in this particular locality. Ariz.

Dry-land rotation. (Huntley and Judith Basin Substations) Mont.

Dry-land crops rotation and tillage methods experiments. (North Platte Substation) Nebr.

Dry-land rotation and tillage experiments.--To determine the proper rotation and crop sequence, and the most desirable tillage methods for farming in western North Dakota. (In cooperation with the Office of Dry Land Agriculture Investigations, U.S.D.A.) (Dickinson and Hettinger Substations) N.Dak.

Dry-land agriculture investigations. A series of crop rotation and tillage experiments. (In cooperation with the Office of Dry Land Agriculture Investigations, U.S.D.A.) (Garden City Substation) Kans.

Dry-land agriculture investigations. Crop rotation and tillage experiments, experiments in seed bed preparation for wheat, commercial fertilizer tests, green manures and soil moisture studies. (In cooperation with the Office of Dry Land Agriculture Investigations, U.S.D.A.) (Fort Hays Substation) Kans

A series of crop rotation and tillage experiments. Green manure and soil moisture investigations. (In cooperation with the Office of Dry-Land Agriculture Investigations, U.S.D.A.) (Colby Substation) Kans.

Emmer.

Variety testing, breeding, acclimatization, and cultural studies of small grains.--To improve the quality and yield of small grains, including winter wheat, oats, spring wheat, rye, winter barley, and winter emmer. Nebr.

Emmer. (Cont.)

A study of the performance of different varieties of spring wheat, barley, and emmer and their adaptation to northern and central Illinois conditions. Ill.

Emmer, rye, and miscellaneous grain investigations. Idaho.

Field beans.

Breeding work with beans. Mich.

Breeding field and garden beans for disease resistance. New York Cornell.

Bean increasing. Mich.

Bean variety testing. Mich.

Variety tests with beans. Misc.

Field bean varieties. R.I.

Field and garden bean and pea investigations. Variety tests. (Aberdeen Substation) Idaho.

A study of field beans as to types and varieties. New York Cornell.

Over State varietal tests with beans. Mich.

Cooperative variety trials with field and soy beans in Malheur County. Oreg.

Field and garden pea and bean investigations. (Aberdeen Substation) Idaho.

Cultural practices with beans. Mich.

To produce an edible field bean which can be grown successfully as a summer crop. Ariz.

Studies in the classification of farm crops, including field beans, field peas, oats, barley, and millet varieties. Minn.

Field peas.

Field pea investigations. (Upper Peninsular Substation) Mich.

Breeding peas: (a) Field and canning peas, (b) peas for northern Wisconsin. "i

Field peas. (Cont.)

Field and garden pea investigations. Breeding and improvement. Idaho.

Variety tests with peas. Minn.

Field and garden pea and bean investigations. Variety tests. (Aberdeen Substation) Idaho.

Field and garden pea investigations. Variety tests with standard varieties. (Standpoint Substation) Idaho.

Variety test of field peas and soy beans, with field planting, etc. (North Central Branch Station, Grand Rapids) Minn.

Variety test of field peas.--To determine the relative value of varieties of field peas for forage and seed production. (Dickinson Substation) N.Dak.

Variety tests of oats, barley, flax, winter rye, soy beans, millet, buckwheat, and field peas. Minn.

Varietal trials, including wheat, barley, oats, field peas, corn, and potatoes. (In cooperation with the Offices of Cereal Investigations and of Forage Crop Investigations, U.S.D.A.) (More Substation) Oreg.

Pea variety trials.--To obtain data on the yields of various pea varieties for this section of the State. (Langdon Substation) N.Dak.

Field and garden pea investigations.--To determine the varieties best adapted to irrigated and dry lands. (High Altitude Substation) Idaho.

Value of the various pea varieties as a nurse crop for alfalfa. (Aberdeen Substation) Idaho.

Field and garden pea investigations. Cultural experiments. Idaho.

Forage crop investigations. Cultural trials with Tangier peas. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.) Oreg.

Rate of seeding peas.--To determine the rate of seeding peas which will give the highest yield. (Langdon Substation) N.Dak.

Cause of "rogues" in peas. (Ashland Substation) Wis.

Field and garden pea investigations. Classification studies. Idaho.

Classification and testing of field peas found on the market and secured from other sources. Mich.

Studies in the classification of farm crops, including field beans, field peas, oats, barley, and millet varieties. Minn.

Flax.

Development of superior strains of flax for Michigan conditions. (In cooperation with the Bureau of Plant Industry, U.S.D.A.) Mich.

Investigations with flax: (a) Flax breeding, (b) cultural practice, (c) economic importance of flax compared with cereals, and (d) use of flax as a nurse crop. Wis.

Variety tests of oats, barley, flax, winter rye, soy beans, millet, buckwheat, and field peas. Minn.

Varietal experiments with flax.--To find what varieties are best adapted to this section of the State. (Dickinson Substation) N.Dak.

The development of wilt-resistant flax. Minn.

Flax rotations. (Hettinger Substation) N.Dak.

Flax sequence tests. A series of rotations to answer the question of land preparation for flax as determined primarily by the previous crop, the physical condition of the soil required, and the effectiveness of these preceeding crops in controlling. (Langdon Substation) N.Dak.

Flax investigations.--To establish a simple, effective, and profitable rotation of crops for regions of deficient rainfall, with special reference to a maximum production of flax on old land. (Williston Substation) N.Dak.

Flax investigations: (a) To determine the best methods for cropping flax on old land through means of crop rotation, (b) to develop new and better wilt resistant and higher yielding varieties of flax, (c) to determine methods of tillage in preparing land for flax, designed to effectively destroy weeds. N.Dak.

Value of flax for new land. (Ashland Substation) Wis.

Forage crops.

Forage crop tests. (North Montana Substation) Mont., (Northeast Demonstration Farm, Duluth) Minn.

Tests of different forage crops, at Churchville and Alfred, N.Y. N.Y. Cornell

Forage crops experiment with miscellaneous crops. (Lightfoot Substation) Va.

Tests with imported grasses and forage plants. S.Car.

Forage crop trials. (Hettinger Substation) N.Dak.

Forage crops. (Cont.)

Crop breeding, including cereals, cotton, and forage crops. Ga.

Varietal tests of cereal and forage crops. (Tribune and Colby Substations) Kans.

Forage tests.--To compare some of the suitable clovers and grasses for this territory in the production of forage. (Langdon Substation) N.Dak.

Comparative test with forage crops and grasses. S.C.

Forage crop experiments.--To introduce and try out tame grasses, legumes, varieties of millets, corn, and sorghums to determine the hardiest and most productive strains of forage plants for growing here. (Edgeley Substation) N.Dak.

Forage crop variety tests. (Valentine Substation) Nebr.

Variety tests of grain and forage. Mont.

Introduction and trial of new forage plants.--To include the introduction and trial on small plot areas of new plants which may prove valuable for hay, pasture, silage, or other forms of roughage for stock. Testing of some of the most promising of these new plants. Fla.

Forage crop investigations. Nursery trials of miscellaneous forage crops. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.) Oreg.

Introduction and testing of miscellaneous forage crops. (In cooperation with the U.S. Department of Agriculture) Idaho.

The introduction and testing of such crops as flax, buckwheat, sunflowers, corn, etc., for the production of grain or forage. (High Altitude Substation) Idaho.

Short season forage crop test. Mich.

Annual summer forage crops. Conn. Storrs.

Summer forage crops. Mass.

Winter forage experiments. Ala.

Forage crop tests on dry land. (Judith Basin Substation) Mont.

Forage crops. (Cont.)

Studies of various forage plants suited to coastal plains soils. (In cooperation with the Bureau of Animal Industry, U.S.D.A.) (Coastal Plain Substation) Miss.

Tests of various forage crops and forage crop varieties and cultural experiments. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.) (Fort Hays Substation) Kans.

To determine the adaptability of annual forage crops, best cultural methods, and dates and rates of seeding, the adaptability and best methods of culture of the biennial and perennial legumes and of the perennial grasses to the various soil types and climatic conditions in North Dakota. N.Dak.

Forage crop investigations, including an extensive set of annual forage crops compared as to yield, date of seeding, rates of seeding, and methods of seeding; also a study of alfalfa from seed procured from different sources Nebr.

Methods of seeding cereal and forage crops. (Tribune Substation) Kans.

Influence of date of planting and rate of seeding upon yields of silage crops. (Union Substation) Oreg.

To determine the best field practices for handling various forage crops, both for production of forage and production of seed. Wash.

Effect of fertilizers on hay and seed production. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.) Oreg.

Recording yields of alfalfa, peas and barley, corn, and wheat, after having received an application of different fertilizers. (Union Substation) Oreg.

Combinations of corn and other crops for forage uses. Ohio.

Comparison of yields of corn, peas and barley, peas and oats, and sunflowers for silage purposes. (Union Substation) Oreg.

Tests of crops, species and varieties as to value for soiling crops. (Astoria Substation) Oreg.

Development of a soiling crop system for summer soiling for dairy cows. (Astoria Substation) Oreg.

Forage crop investigation.--To develop pasture and soiling crops adapted to local conditions. Guam.

Forage crop experiments.--To introduce and test leguminous plants as feed for animals. Porto Rico.

Forage crops. (Cont.)

Feed raising tests.--To compare oats, barley, and sorghum in the production of feed per acre. (Langdon Substation) N.Dak.

Experiments in forage, green manure, and winter cover crops.--To determine the best use of rye, winter vetch, sweet clover, and common clovers, and alfalfa, for forage, green manures and winter cover crop purposes. Md.

Chemical composition of forage crops as affected by various factors. Iowa.

The chemical analysis of forage crops and feeding stuffs, in cooperation with the animal husbandry department. Wyo.

A study of some of the annual forage crops with special reference to yields of dry matter and chemical composition. Wyo.

Grasses, general.

Experiments with grasses.--To obtain valuable fodder grasses for stock raising purposes. Virgin Islands.

Grasses and legumes for hay and seed. Idaho.

Grasses and clover for forage and permanent pasture, including Bermuda grass and bur and crimson clover. (Holly Springs Substation) Miss.

Improvement of grasses and legumes by selection of plants and artificial breeding. (North Central Branch Station, Grand Rapids) Minn.

Orchard grass improvement for pasture and meadow purposes. Ky.

Variations in orchard grass, with a view to selecting better strains. Va.

Orchard grass selection and improvement. Idaho.

Variety tests of grasses and mixtures. Ala.

Variety test of perennial grasses and mixtures. (North Central Branch Station) Minn.

Comparative test with forage crops and grasses. S.C.

A comparison of 10 meadow grasses as regards yields, quality (including palatability), and permanency. Ohio.

Perennial grasses, seed and hay yield. A comparison of the seed and hay yield of perennial grasses adapted to the region. (Dickinson Substation) N.Dak.

Grasses, general.) (Cont.)

Testing varieties of grasses and clovers both for forage and for hay as to their adaptability to local climate and soil conditions. (Starkville, Holly Springs, and Raymond Substations) Miss.

Tests with imported grasses and forage plants. S.C.

Tests with crested wheat grass. Mont.

Pasture trials with grasses and legume mixtures on hill land. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.) Oreg.

Irrigated pasture grasses. (Huntley Substation) Mont.

Production experiments with pasture grasses. (Garden City Substation) Kans.

Test of meadow fescue v. timothy under various drainage conditions. Mass.

Nursery trials with grasses for forage and seed production and disease resistance. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.) Oreg.

Plot trials with grasses for forage and seed production. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.) Oreg.

Test of grasses.--To learn which grasses are best suited to interior Alaska. Alaska.

To ascertain what species of grasses and legumes are best suited to the peculiar conditions. Alaska.

A varietal and cultural test of grain, grasses, and miscellaneous crops. Ariz.

To determine the best varieties of grasses and legumes for the production of forage and the most successful cultural practice. (High Altitude Substation) Idaho.

Dates of grass seeding experiment. (Martinsville Substation) Va.

Fertilizer tests with grass. (Staunton and Martinsville Substations) Va.

Grass and legume mixtures. Minn.

Lawn-grass mixtures sold in New York. N.Y. State.

Lawn and golf grasses. More or less permanent plats of different kinds and mixtures. R.I.

Grasses, general. (Cont.)

Lawn and golf grasses. Different manurial and fertilizer treatment as influencing especially the soil reaction and weed growth. R.I.

Investigation of the marketing of bluegrass and orchard grass seed. Ky.

Grasses and grass-like plants: Economic study of. Ariz.

To prepare a manual of the wild and cultivated grasses of Maryland, by which they can be identified and their economic value determined. Md.

Hay.

Hay and pasture investigations. Iowa.

Annual hay crop investigations. (Upper Peninsular Substation) Mich.

Emergency hay crops. Wis.

Study of grain hay at different stages of cutting. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.) Oreg.

Hay tests of forage plants alone and in mixture. W.Va.

Vetch and grain mixture for hay. Ala.

Comparison of alfalfa and sweet clover and cowpeas and soy beans as hay crops. (Charlotte Court House Substation) Va.

Methods of handling hay. Colo.

Comparison of various methods of determining air-dry hay weights. Ill.

Moisture changes in stored hay. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.) Oreg.

Relation of hay volume to weight at different periods of stacking. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.) Oreg.

Hemp.

Hemp crossing and classification to obtain reliable strains for Michigan conditions. Mich.

Rate of seeding in relation to quality and yield of fiber. Ky.

Effect of commercial nitrogen on yield and quality of fiber. Ky.

Horse beans.

Nursery trials with vetches and related plants, new vetch varieties, and horse bean varieties. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.) Oreg.

Cultural trials with vetches and related plants and with horse beans. (In cooperation with the Office of Forage Crop Investigations, U. S. D. A.) Oreg.

Irrigation crops.

Field crop investigations under both dry farming and irrigation. Varietal trials with wheat, oats, barley, rye, field peas, corn, alfalfa, sunflowers, grasses, potatoes, and other minor crops. (In cooperation with the Office of Cereal Investigations, U.S.D.A.) (Burns Substation) Oreg.

Field crop investigations under both dry farming and irrigation. Date and rate of seeding investigations with wheat, oats, barley, rye, field peas, corn, alfalfa, sunflowers, grasses, potatoes, and other minor crops. (In cooperation with the Office of Cereal Investigations) (Burns Substation) Oreg.

Johnson grass.

The inheritance in crosses between Sudan grass and Johnson grass.--To determine the mode of inheritance of the root systems in crosses between Johnson grass and Sudan grass. Ga.

Johnson grass eradication.--To determine a practical method of eradicating Johnson grass. N.Mex.

Kafir--see sorghums.

Kudzu.

Kudzu. Del.

Value of kudzu for pasture. Ga.

Value of kudzu for forage in Wisconsin. Wis.

Legumes. (See also specific legumes).

Improvement of grasses and legumes by selection of plants and artificial breeding. (North Central Branch Station, Grand Rapids) Minn.

Legumes. (Cont.)

Annual summer legumes in Arkansas: Varieties, breeding, rates and times of seeding, and utilization. Ark.

Comparison trials with different legumes. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.) Oreg.

To ascertain what species of grasses and legumes are best suited to the peculiar conditions. Alaska.

Orchard cover crops. Varietal tests of legumes for southern Oregon conditions. (Talent Substation) Oreg.

Leguminous forage crops test.--To find legumes which can be successfully grown for forage. Alaska.

To determine the best varieties of grasses and legumes for the production of forage and the most successful cultural practice. (High Altitude Substation) Idaho.

Varietal and cultural tests of legumes. Ariz.

Grass and legume mixtures. Minn.

Pasture trials with grasses and legume mixtures on hill land. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.) Oreg.

Legumes and grasses for hay and seed. Idaho.

Legume tests for grain purposes.--To find a profitable legume to grow in St. Croix to provide grain for human consumption. Virgin Islands.

Effect of companion cropping of corn with legumes. S.C.

Effect of legumes upon subsequent crops under varying conditions. Ark.

Trials with various legumes for green dressing purposes.--To find a legume resistant to caterpillar and fungus attacks which will be suitable for green dressing purposes. Virgin Islands.

The comparative value of different legumes as soil improvers when used in rotation with cotton and corn. S.C.

Comparison of different amounts of rock phosphate with different legumes. Ill.

To determine the value of lime, gypsum, and sulphur as related to the growth of legumes. (Sandpoint Substation) Idaho.

Legumes. (Cont.)

Hard seeds in legumes. N.Y. State.

A study of the hard seed in vetch and other legumes. N.Y. Cornell.

Nitrogen content of legumes as affected by different methods of inoculation.
Minn.

A chemical study of legumes growing in western Oregon. Oreg.

Peanuts, sorghums, legumes.--To keep in timely touch with subjects that are constantly coming up, not of sufficient importance for separate projects. Okla.

Legumes, inoculation of. (See also Botany--Nitrogen assimilation.)

Inoculation of legumes. S.Dak.

Inoculation experiments with legumes. Wis.

Experiments in soil inoculation. N.J.

Effect of various factors on inoculation by legume bacteria. Wash.

Factors that control the infection of legumes by bacteria. Wash.

Legume culture preparation. Idaho.

Production and distribution of bacteria for legumes. Mo.

The natural inoculation of Colorado soils with legume bacteria. Colo.

The value of commercial cultures for the inoculation of legumes. Iowa.

Nitrogen content of legumes as affected by different methods of inoculation.
Minn.

Effect of inoculation of soy bean seed on the nitrogen content of the plant.
Wis.

Effect of inoculation upon the growth of various legumes. Wis.

Milletts.

Breeding millets. Wis.

Variety test of millets. (North Central Branch Station, Grand Rapids) Minn.

Millets. (Cont.)

Variety tests of oats, barley, flax, winter rye, soy beans, millet, buckwheat, and field peas. Minn.

Varietal experiments with proso millet.--To determine the value of proso millet as a grain crop in comparison with other grains, and to determine the best varieties for this locality. (Dickinson Substation) N.Dak.

Testing millets for yields of hay. Va.

To compare different varieties of millet in the production of hay. (Langdon Substation) N.Dak.

To test the relative forage yields of the annual grasses, millet, sorghum, and sudan grass. (Dickinson Substation) N.Dak.

Studies in the classification of farm crops, including field beans, field peas, oats, barley, and millet varieties. Minn.

Milo.

Spacing tests with milo in dry-land agriculture. (Garden City Substation) Kans.

Spacing tests with milo in irrigation agriculture. (Garden City Substation) Kans.

Mung beans.

Variety tests, including corn, cotton, soy beans, cowpeas, and mung beans. (North Louisiana Substation, Calhoun) La.

To isolate more adaptable and higher yielding strains of cowpeas, soy beans, and mung beans for Porto Rico. Porto Rico.

Oats.

Inheritance in oats.--To determine the factors controlling the inheritance of color, hull, and hulllessness, by means of hybridization and segregation. S.C.

Inheritance in a cross of Avena sterilis algeriensis and Avena nuda inermis. Ohio.

Hybridizing oats, with the object of combining the desirable qualities of two varieties into a single strain and to eliminate as many of the bad characters as possible. (Highmoor Substation) Me.

Oats. (Cont.)

Mendelian studies with wheat and oats. N.Y. Cornell.

Breeding oats. (In cooperation with the Office of Cereal Investigations)
N.Y. Cornell.

Breeding work with oats. Mich.

Breeding experiments with wheat, oats, corn, and sorghums. Kans.

Oat, rye, and barley breeding. Wis.

Oat breeding.--To develop earlier and better varieties. Alaska.

Breeding experiments with oats, with special reference to eliminating the
beards of southern varieties through hybridization, selection, etc. Ala.

Oats: Selection and breeding. La.

Selection within pure lines of oats and beans. N.Y. Cornell.

Oat improvement. Idaho.

Oat investigations and oat improvement. Tex.

Pure-line studies with oats. Iowa.

Production of improved varieties of oats. Minn.

A study of the composition of pure strains of wheat, oats, and barley, grown
at various points in the United States. Minn.

Oat increases for distribution. Mich.

Oat production: Variety studies, selection and breeding, cultural methods.
Ark.

To improve the quality and yield of small grains, including winter wheat, oats,
spring wheat, rye, winter barley and winter emmer. Nebr.

Variety tests and selections of hardy strains of winter oats. Md.

Varietal and cultural tests and breeding work with wheat, oats, barley, corn,
and grain sorghums. (In cooperation with the Office of Cereal Investigations,
U.S.D.A.) (Fort Hays Substation) Kans.

A study of oat varieties with a view to their improvement. Pa.

Oats: A test of common varieties and of pure-line strains for yield, quality,
and adaptability. Ohio.

Oats. (Cont.)

Variety testing and head selection for improvement of oats. Wyo.

Oat varieties. Del.

Oat variety tests. Ala.

Oat variety test. Ky., S.C., W.Va.

Variety studies with oats. Iowa.

Variety test of oats. La., (North Central Branch Station, Grand Rapids) Minn., S.Dak., (Substations) Va.

Variety and strain tests of oats.--To find pure lines of oats to displace the poor quality of seed commonly used in the State. Conn. Storrs.

Variety tests with oats, wheat, and barley. (Aberdeen and Sandpoint Substations) Idaho.

Varietal tests of corn, wheat, oats, and barley. (Garden City Substation) Kans.

Variety tests of oats, barley, flax, winter rye, soy beans, millet, buckwheat, and field peas. Minn.

Varietal tests with oats, barley, and wheat. (Union Substation) Oreg.

Varietal trials of winter and spring grains, including wheat, oats, and barley. (In cooperation with the Office of Cereal Investigations, U.S.D.A.) Oreg.

Varietal trials, including wheat, barley, oats, field peas, corn, and potatoes. (In cooperation with the Office of Cereal Investigations and Office of Forage Crop Investigations, U.S.D.A.) (Moro Substation) Oreg.

Variety trials with various farm crops, such as corn, wheat, oats, soy beans, vetch, etc. Tenn.

To determine what varieties and groups of oats yield most in this locality. (Dickinson Substation) N.Dak.

To determine the comparative yields of different varieties of oats in this territory. (Langdon Substation) N.Dak.

To determine the comparative yields of different varieties of oats as shown by competitive tests. Okla.

Variety tests with wheat, oats, barley, and miscellaneous grains under high altitude conditions. (High Altitude Substation) Idaho.

Oats. (Cont.)

Oats variety tests.--To learn which varieties are best suited to the climate. Alaska.

A study of the performance of different varieties of oats and their adaptation to the several sections of Illinois. Ill.

A study of important varieties of oats for Missouri conditions. Mo.

Variety trials with wheat, oats, and barley.--To test out the various strains of these crops to determine the best variety for this section. (Edgeley Substation) N.Dak.

Over State variety tests of oats. Mich.

To test new and standard varieties of spring wheat, oats, barley, and winter rye, as to yielding capacity resistance to disease, and trade value as measured by milling and baking tests. N.Dak.

Studies of varietal resistance of wheat, barley, rye, and oats to root rotting organisms. Minn.

The development of varieties of oats resistant to black stem rust. Minn.

Investigation of oats with reference to resistant varieties to rust and rust infection. Iowa.

Varities of soy beans and soy beans v. oats in rotation. Pa.

To test barley, oats, wheat (spring and winter), rye (winter), and buckwheat on a field scale, including also variety tests. Alaska.

Variety tests and cultural experiments with oats. Va.

Variety tests and methods of seeding also a study of the origin of false wild oats. W.Va.

General culture studies with oats. Iowa.

Fall v. spring planted oats. Ala.

Oats: A study of time, rate, and method of seeding. Ohio.

Dates and rates of seeding oats. Conn. Storrs.

Rate and date of seeding oats, wheat, barley, and rye. Minn.

Oats. (Cont.)

To study dates and rates of seeding wheat and oats at the Piedmont Branch Station, and oats at the Coastal Plain Branch Station. (In cooperation with the Office of Cereal Investigations, U.S.D.A.) N.C.

Date-of-planting experiments with oats, wheat, and barley. Tenn.

Rate of seeding oats. Ky.

Rate of seeding wheat, oats, barley, and corn. (Northwest Experiment Farm, Crookston) Minn.

Different methods of seeding oats. Ala.

Methods of seed bed preparation for wheat and oats. Minn.

To determine the influence of nitrate of soda as a top-dressing to oats. (North Louisiana Substation, Calhoun) La.

Continuous cropping plats of oats, barley, wheat. Two tons manure each year per acre. (West Central Substation, Morris) Minn.

Effect of stage of maturity at harvest upon the germination power of oats, wheat, and barley seed. Wyo.

Do seed oats deteriorate when sown continuously in this latitude? Conn. Storrs.

Observations on the stage of vetch and oat crop for silage. Oreg.

Seed oat studies. Iowa.

Lodging of oats. Wis.

Classification trials with oats. (In cooperation with the Office of Cereal Investigations, U.S.D.A.) Oreg.

Studies in the classification of farm crops, including field beans, field peas, oats, barley, and millet varieties. Minn.

Pasture.

Hay and pasture investigations. Iowa.

Pasture experiments. (In cooperation with the Bureau of soils, U.S.D.A.) Pa.

Pasture experiment on Farm No. V, Field No. 1. Pa.

Pasture. (Cont.)

Pasture improvement. Conn. Storrs.; N. H., W. Va.

Permanent improvement of blue grass pastures. Iowa.

Variety tests of pasture grasses. (In cooperation with the Office of Western Irrigation Agriculture, U.S.D.A.) (Hermiston Substation) Oreg.

Plats of pasture grasses, which receive different fertilizer treatments and from which the grass is clipped at stated intervals, then weighed and samples analyzed to ascertain relative value of grass from different plats. Va.

Temporary pastures.--To work out a system of temporary pasture plants that will furnish continual grazing throughout the year as well as for summer grazing, principally for swine. Miss.

Permanent pastures.--Making of a permanent pasture by determining the combination of plants best suited to obtain a long period of uniform grazing, the cost and method of seeding, and time necessary to make a permanent pasture under local conditions. (Starkville, Raymond, and Holly Springs Substations) Miss.

Grasses and clover for forage and permanent pasture, including Bermuda grass and bur and crimson clover. (Holly Springs Substation) Miss.

Meadow and pasture investigation. Mixed legumes and grasses. (North Central Branch Station, Grand Rapids) Minn.

To try out the effect of seeding various clovers singly and in a mixture for permanent pasture. Mich.

Pasture and annual pasture crops. (Valentine Substation) Nebr.

Sweet clover pasture. (Scottsbluff Substation) Nebr.

Studies as to the best treatment and the value of pastures. N.Y. Cornell.

Tests of rotation grazing; studies of the effects of early and late spring and of fall burning and of other methods of treating native pastures. Kans.

Pasture renovation. W.Va.

Restoring pasture and meadow on volcanic ash.--To introduce tame grasses and clovers as far as practicable to take the place of native grasses destroyed by ash fall. Alaska.

Pasture. (Cont.)

Triangle soil test on pasture land. Conn. Storrs.

Top-dressing permanent grass lands. Mass.

Top-dressing hay land. N.H.

Studies in top-dressing meadows. Del.

Meadow and pasture tests, with commercial fertilizers and mixed grasses.
(North Central Branch Station, Grand Rapids) Minn.

A study of pasture values and pasture methods for horses, cattle, sheep, and swine. Kans.

Pasture yields for lambs. Oreg.

To determine the carrying capacity of pasture grasses and the most economic season for the manner of grazing pastures. N.Dak.

Pasture and meadow crops for Arkansas. Ark.

Pasture conditions in West Virginia. W. Va.

Irrigated pasture; carrying capacity. (Scottsbluff Substation) Nebr.

Ecological study of pasture vegetation. Mass.

Pasture survey with attention given to the succession of vegetation in different methods of handling. Utah.

Peanuts.

Breeding peanuts. Ala.

Crop improvement by mass and individual plant selection, including small grains corn, grain sorghums, and peanuts. Tex.

Selection work with peanuts. (Holland Substation) Va.

The study of characters and improvement of the peanut. Tex.

Improvement of the peanut by increasing the yield of nuts and oil content through selective breeding. Fla.

Peanuts, variety test. Ala.

Variety tests with peanuts. S.C.

Peanuts. (Cont.)

Variety tests with peanuts. S.C., (Holland Substation) Va.

Rate of seeding peanuts. Ala.

Fertilizer experiments with peanuts. (Holland Substation) Va.

Peanuts: Fertilizer experiments. Ala.

Sources of phosphorus in fertilizers for peanuts. (Holland Substation) Va.

To determine the production of corn, sweet potatoes, and peanuts in rotation and using various forms of commercial fertilizer and lime. Fla.

Grazing peanuts with hogs v. marketing the crop. Ala.

Peanuts, sorghums, and legumes.--To keep in timely touch with subjects that are constantly coming up, not of sufficient importance for separate projects. Okla.

Popcorn.

Popcorn breeding work. Mich.

Practical corn breeding; to produce a productive variety as early as Gehu, with ears sufficiently high to harvest easily, and to produce an early variety of popcorn of superior value. N.Dak.

The popping of popcorn. N.Y. State.

Potatoes.

Genetics and breeding.

Potato breeding. Utah.

Irish potato breeding. W. Va.

To determine a practical means of developing a vigorous productive strain of early seed potatoes adapted to the State. A study of the factors or agencies influencing or causing degeneracy of Irish seed potato stock. Okla.

Breeding work on Lookout Mountain potatoes. S.C.

Potato investigations. Seed selection. (Northwest Experiment Farm, Crookston) Minn.

Potatoes. (Cont.)

Genetics and breeding. (Cont.)

Seed selection work with potatoes on irrigated land. Mont.

Tuber selection studies with potatoes. N.Y. Cornell.

Tuber-unit potato improvement. (Aberdeen Substation) Idaho.

To determine the value of hill and tuber-unit methods of seed selection for intensifying desirable characteristics of potatoes, and if these methods can produce higher yielding strains. (Swannanoa Substation) N.C.

Potato selection for seed purposes. (North Platte Substation) Nebr.

Potato selection experiments. The value of selection on yield and earliness. N.H.

Potato investigations. Hill selection work. (West Central Substation, Morris) Minn., (In cooperation with the U.S. Department of Agriculture) Oreg.

Hill selection of potatoes. Pa.

Hill selection experiments with potatoes. S. Dak.

Improvement of the McCormick potato by hill selection of seeds. Md.

To determine the value or superiority of certified or inspected seed stock over uncertified or uninspected stock. (In cooperation with the U.S. Department of Agriculture) La.

Potato seed improvement on dry land. Mont.

Environmental factors influencing potato seed selection on dry land. Mont.

Potato improvement on dry land. (Judith Basin Substation) Mont.

Environmental factors influencing potato seed selection on irrigated land. Mont.

Potato seed improvement on irrigated land. (Corvallis Substation) Mont.

Environment v. potato seed selection. (Corvallis Substation) Mont.

To locate strains of potatoes that are free from certain serious diseases with special reference to mosaic. Mich.

Potatoes. (Cont.)

Genetics and breeding. (Cont.)

A study of varieties and seedlings for their identification, economic value, resistance to "mosaic dwarf" and "hopper burn"; place effect on the productivity of potato seed stock; factors influencing the dropping of flowers. Minn.

Variety studies.

Potato variety test. N.J., W.Va.

Varietal trial of potatoes. (In cooperation with the U.S. Department of Agriculture) Oreg.

Potato varieties. R.I.

Variety tests of potatoes. (Corvallis Substation) Mont., (Substations) Va.

Irish potato variety studies. Ky.

Potato investigations. Varietal experiments. (Aberdeen Substation) Idaho.

Potato investigations. Variety tests. (Substations) Minn.

A potato variety and type test. N.Y. Cornell.

Variety tests of potatoes on irrigated land. Mont.

Tests with strawberries and potatoes. (Hood River Substation) Oreg.

Varietal trials, including wheat, barley, oats, field peas, corn, and potatoes. (In cooperation with the Offices of Cereal Investigations and of Forage Crop Investigations, U.S.D.A.) (Moro Substation) Oreg.

Variety tests of potatoes on dry land. Mont.

To determine the best variety of potatoes for local use. (Dickinson Substation) N.Dak.

Tests of regional strains of potatoes. S.Dak.

Potato variety tests.--To find the varieties best suited to Alaska. Alaska.

Test of adaptability of seedling potatoes originated at Sitka and Matanuska. Alaska.

A study of potato types as to regional adaptation in New York. N.Y. Cornell.

Potatoes. (Cont.)

Variety studies. (Cont.)

Irish potato variety test.--To determine the best varieties for western North Carolina. (Swannanoa Substation) N.C.

To determine the best varieties of potatoes for North Dakota. (Hettinger and Langdon Substations) N.Dak.

To test out the varieties of potatoes adapted to this district, with special attention to strains showing hardiness and disease resistance, cooking and keeping qualities, and productiveness, with a comparison between early, medium, and late ripening varieties. (Edgeley Substation) N.Dak.

A study of the varieties of potatoes with a view to improving those best adapted to Pennsylvania conditions. Pa.

Varieties adapted to the Appalachian region of Virginia, also selections of promising strains by the tuber-unit method; fertilizer requirements; farm storage of potatoes. Cultural methods. Va.

Variety test of Irish potatoes: (a) early varieties, (b) second crop varieties. N.C.

Variety testing and selection of high yielding strains of potatoes by the tuber-unit method. Wyo.

Variety tests of potatoes. Improvement of potatoes by selection. Wis.

Strain and source trials with potatoes, particularly to check up certification. Conn. Storrs.

Potato investigations of varieties, culture, and fertilization. (Upper Peninsular Substation) Mich.

Irish potato variety, culture, and fertilizer tests. (Holly Springs and Raymond Substations) Miss.

Seed studies.

Potato seed studies. Iowa.

Seed potato production. Wash.

Seed potato improvement. (In cooperation with the Bureau of Plant Industry, U.S.D.A.) Minn.

Potatoes. (Cont.)

Seed studies. (Cont.)

To determine whether or not seed can be produced in western North Carolina that will be of value for eastern North Carolina. (Swannanoa Substation) N.C.

To determine the relative values for fall planting of seed saved from spring harvest from certified stock on one hand and that from uncertified stock on the other. La.

Seed potato growing in high altitudes. Colo.

Tests of sources of Irish potato seed. S.C.

Potato investigations. Source-of-seed and fertilizer tests. Kans.

Testing value of different sources of seed.--To determine the comparative value of Maine-grown seed, second crop seed produced in the Coastal Plain and western North Carolina, and seed in different stages of maturity, as the most desirable seed for the early crop of Irish potatoes in eastern North Carolina. N.C.

Investigations with seed potatoes. A comparison of home-grown with northern-grown seed. Mo.

To compare Indiana-grown seed potatoes with seed stock from Michigan and Wisconsin and also selections from these stocks. Ind.

Irrigated v. dry-land potatoes for seed. (Huntley Substation) Mont.

Size of potato seed piece. N.J.

Various methods of cutting seed potatoes. Pa.

To demonstrate that potato tip ends and stem ends will produce the same size and yield of potatoes as the centers, provided the centers are cut to the same size as the ends. (Langdon Substation) N.Dak.

Effect of different sized portions of seed at different moisture content on the early growth of the potato plant. Wyo.

Effect of the size and portion of seed per tuber used on the growth and yield of the potato plant. Wyo.

Potatoes. (Cont.)

Seed studies. (Cont.)

Potato selection for seed purposes.--To determine (a) the value of western Nebraska seed potatoes compared with those from other regions, (b) the value of irrigated potatoes for seed purposes, (c) to study the general cultural factors influencing the production of seed potatoes, and (d) to study varieties in various parts of Nebraska. Nebr.

Comparison of sprouted and good potato seed. (In cooperation with the U.S. Department of Agriculture) Oreg.

Effect of diseased and ill-shaped seed potatoes on succeeding crop. Colo.

Investigations in potato culture. Effect of sprouts on vigor of seed parts. (Northeast Demonstration Farm, Duluth) Minn.

Potato seed certification. N.H.

Comparison of certified and noncertified potato seed. S.C.

To determine the effect of various ways of handling seed potatoes on the crop. N.Dak.

Seed treatment of Irish potatoes. Ark.

Seed treatment materials and methods. Cereals and potatoes. Oreg.

To test the effect of various recognized potato seed treatments on yield per acre. (Langdon Substation) N.Dak.

The effect of seed treatment of potatoes, for disease, on yield. (Torrington Substation) Wyo.

Tests of the hot formaldehyde treatment of seed potatoes.--To determine the effect on the germination of potatoes, of temperatures higher than those required, and of longer periods of soaking than those required in the hot formaldehyde process. (Langdon Substation) N.Dak.

Cultural studies.

Potato culture experiments. W. Va.

To learn how to grow potatoes with best results. Alaska.

Investigations in potato culture. Cultural tests. (Northeast Demonstration Farm, Duluth) Minn.

Potatoes. (Cont.)

Cultural studies. (Cont.)

Cultural practices with Irish potatoes. (Willard Substation) N.C.

To determine best cultural methods of growing potatoes. Mich.

Methods of planting potatoes. (Northwest Experiment Farm, Crookston) Minn.

Potato investigations. Cultivation; surface, and ridged. (West Central Substation, Morris) Minn.

Ridging v. level cultivation of potatoes. (Judith Basin Substation) Mont.

Investigations in potato culture. Drill versus checks. (Northeast Demonstration Farm, Duluth) Minn.

Investigations in potato culture. Date of planting. (Northeast Demonstration Farm, Duluth) Minn.

Time of planting late potatoes. Md.

Time of planting late crop potato seed. N.J.

Effect on tuber formation of planting main crop potatoes at different dates. Conn. Storrs.

Distance of planting dry land potatoes. (Judith Basin Substation) Mont.

Effect of the distance apart in row and of missing hills on yield and quality of potatoes. Effect of missing hills on total yield. Wyo.

Investigations in potato culture. Spacing of rows. (Northeast Demonstration Farm, Duluth) Minn.

Rates of planting seed potatoes to determine the best distance between hills. Conn. Storrs.

To determine the effect of different distances of planting on the yield of potatoes. (Langdon Substation) N.Dak.

Depth of planting potatoes. (West Central Substation, Morris) Minn.

Cultural trials for potatoes: (a) Size of piece for planting, (b) method of cutting for seed, (c) comparison of cut and uncut seed, (d) comparison of cut seed with and without landplaster, (e) time of planting, (f) depth of planting, and (g) hill v. flat cultivation. (In cooperation with the U.S. Department of Agriculture) Oreg.

Potatoes. (Cont.)

Fertilizer experiments.

Potato investigations. Fertilizer tests. (Northwest Experiment Farm, Crookston) Minn.

Potato fertilization. Wis.

Mineral nutrient requirements of the potato plant. Md.

A study of the fertilizer requirements of cabbage, tomatoes, and potatoes on DeKalb soils. Pa.

Investigation of potato fertilizers. A study of balanced and unbalanced fertilizers and the best proportion of the three fertilizer ingredients, ammonia, phosphoric acid, and potash. (In cooperation with the Office of Soil Fertility Investigations, U.S.D.A.) N.J.

Effect of commercial fertilizer on potato yield and quality. (In cooperation with the U.S. Department of Agriculture) Oreg.

Continuous fertilizer experiment.--To determine whether or not certain potato difficulties are associated with fertilizer practices. (Aroostook Substation) Me.

Potatoes in rotations and fertilizer tests. (Scottsbluff Substation) Nebr.

Fertilizer tests of Irish potato seed. S.C.

Potash tests on potatoes. N.H.

Spraying experiments.

Potato spraying. Minn.

Investigations in potato culture. Spray studies. (Northeast Demonstration Farm, Duluth) Minn.

Spraying experiment on Irish potatoes. Ga.

Control of early blight of potatoes. Iowa.

To determine the effect of pressure on the protection afforded by Bordeaux mixture. Effect of number of nozzles used per row in spraying on late blight control. Degree of control of late blight obtained with different Bordeaux mixtures and Burgundy mixture. N.H.

Potatoes. (Cont.)

Spraying experiments. (Cont.)

Effect of spraying with Bordeaux, on yield of early and late potatoes. Conn. Storrs.

Stimulating influence of Bordeaux mixture on potato plants. N.J.

The stimulating effect of Bordeaux mixture on plants, especially the potato plant. Vt.

Potato spraying-dusting. Mass.

Spraying v. dusting tests. Fruit trees and potatoes. Oreg.

Cooperative test of fungicides on potatoes. Mass.

Miscellaneous.

Potato investigations. Colo., W.Va.

Potato experiments. Ky.

Potato production experiments. Idaho.

Irish potato studies. Ariz.

Relation between the nature of the growth of the potato plant to yield. Wyo.

A study of the relation of vigor to yield in Irish potatoes. (Willard Substation) N.C.

Potato storage. N.J.

Effect of various storage conditions on the quality and seed value of root crops, with special reference to potatoes. Md.

A study of factors involved in the production, storage, and handling of Irish potatoes. Ark.

Storing first crop of Irish potatoes in sweet potato storage house.---To determine the value of sweet potato storage house for storing first crop of Irish potatoes. (Willard Substation) N.C.

Potato investigations. A comparison of yields from tubers under continuous selection for twenty years or more with those from little or no selection, also the effect of protecting potato plants with insect cages in badly infected fields. Minn.

Potatoes. (Cont.)

Miscellaneous. (Cont.)

A study of degeneracy in potatoes, rapidity, factors causing, and means of control. Nebr.

A study of the causes of deterioration in potatoes. Conn. Storrs.

Reason for the failure of potato tubers to develop properly in parts of New Mexico. N.M.

Regeneration in potato tubers. Ma.

Potato rotations. (North Montana Substation) Mont.

Potato investigations. Rotation tests. (Northwest Experiment Farm, Crookston) Minn.

Potatoes - environmental test.--To determine the effect of local environment on the yield of potatoes. (Dickinson Substation) N.Dak.

Effect of climate on productiveness of the potato. A comparison of northern grown potato seed with seed grown in southern New Hampshire from the same strain. N.H.

Potatoes on alfalfa sod. N.J.

Methods of irrigating potatoes. (Corvallis and Huntley Substations) Mont.

Irrigation of potatoes. (Huntley and North Montana Substations) Mont.

Irrigated v. dry-land potatoes. (Judith Basin and North Montana Substations) Mont.

The composition of potato tubers. Minn.

Physiological studies of seed potatoes. N.J.

Marketing Nebraska potatoes. Nebr.

Potato investigations. Potato classification and identification nursery. (In cooperation with the U.S. Department of Agriculture) Oreg.

Range studies. (See also Animal Husbandry - Cattle, grazing and range experiments)

Range improvement. Colo.

A study of range improvement through fencing. Ariz.

Range studies. (Cont.)

Range improvement: (a) Study of the ground cover under three types of grazing, (b) life history studies of the more important forage grasses, (c) meteorological factors as they affect the composition of the range, and (d) reseeding studies. Colo.

Reseeding ranges. Utah.

Plains crops and management. Colo.

Range survey. Utah.

Rape.

Forage crop investigations. Seeding and cultural trials for production of rape. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.) Oreg.

Rape as material for silage. Ensiling rape. Iowa.

Residual effect of crops. (See also Rotations.)

To determine the effect of cropping systems upon the production of succeeding crops. Wash.

Effect of crops on those which follow. Minn.

Extent and nature of influence exerted upon plants by previous growth of other kinds of plants. R.I.

A study of various crop rotations, and the effect of the preceding crop upon yield. Ohio.

Effects of certain crops on soil fertility. Plots planted to various crops and combinations of crops, followed by wheat as an indicator of the fertility. Miss.

Investigation of the value, nature, and duration of the residuary effects of vegetable matter when applied to soils of different texture. Mich.

Crop residue experiment.--To study the effect of returning residues, compared with removing them, on the yield of crops, the moisture content of soil, and temperature, aeration, granulation, and draft of plow. Ill.

Residual effects of other crops on the corn crop. (Scottsbluff Substation) Nebr.

Residual effect of crops. (Cont.)

Effect of legumes upon subsequent crops under varying conditions. Ark.

Green manuring experiments with cowpeas.--To determine the effect of cowpeas when turned under on nonlegumes immediately following. (Jackson Substation) Tenn.

The effect of the cowpea crop on soil fertility with special regard to a wheat crop and a corn crop following. A study of the nitrogen content of the soils is included. Tenn.

Crop relations, comparative effect of tobacco and other crops on yields of succeeding crops. (In cooperation with the Bureau of Plant Industry, U.S.D.A.) Md.

To secure the best method of growing and handling and especially the effect of drainage on the life of alfalfa, secondarily to determine the effect of yield of corn following the crop. (Sugar Station) La.

The comparative after effects of various legumes and of grass as shown by succeeding corn crops. (Jackson Substation) Tenn.

To study effect and to eliminate any bad effects on growing tobacco after cowpeas. (In cooperation with the U.S. Department of Agriculture) N.C.

Rice.

Rice improvement and methods of production. Tex.

Production of higher yields and more adaptable strains and varieties of rice. Porto Rico.

Rice production. Variety studies, weed control, rotation, soil fertility problems. Ark.

Variety and fertilizer tests with rice.--To determine the most desirable variety or varieties of rice for Guam and to study the effect of different fertilizing constituents upon rice production on the principal types of Guam soils. Guam.

To ascertain the suitability of varieties of rice secured from other parts of the world to Louisiana soil and climatic conditions. (Crowley Substation) La.

Rice culture, including: (a) Preparation of the land, (b) rate of seeding, (c) date of seeding, (d) manner of seeding, (e) type of irrigation, and (f) application of fertilizer. (Crowley Substation) La.

Rice. (Cont.)

To determine the best time of seeding and irrigating rice. Porto Rico.

To clarify the problem of the forms of nitrogen and phosphate best suited for rice culture and to consider the advisability of using lime for rice soils. Porto Rico.

Forage and renovating crops in rotation with rice.--To find a method of rotation that will help to eliminate red rice from the fields and help to maintain soil fertility. (Crowley Substation) La.

Drainage survey of rice lands. Calif.

Rice investigations. Chemical studies of water and soils. Calif.

Physical study of rice lands. Calif.

Irrigation and cultural experiments with rice in the Sacramento Valley. Calif.

Rice investigations in the Imperial Valley. Calif.

Root crops.

Root crop investigations. Variety tests. (Northwest Experiment Station, Crookston) Minn.

Variety test of roots. (North Central Branch Station, Grand Rapids) Minn.

To determine the relative yields of various root crops. (Dickinson Substation) N.Dak.

Root trials.--To determine the comparative yields of roots for this territory and obtain practical information on the harvesting and handling of different varieties. (Langdon Substation) N.Dak.

Root crop investigations. (Upper Peninsular Substation) Mich.

Rotations.

Crop rotation. (Northwest Experiment Station, Crookston) Minn.

Crop rotations. (Northeast Demonstration Farm, Duluth) Minn.

Rotation experiments. Ariz. (In cooperation with the Office of Cereal Investigations, U.S.D.A.) (Burns Substation) Oreg., (Bowling Green and Chatham Substations) Va., W. Va., (Substations) Wyo.

Rotations. (Cont.)

Studies of various crop rotations. Del.

A comparative study of various crop rotations. (Jackson Substation) Tenn.

Crop rotation investigations. Field C rotations, and field T rotations. Minn.

Crop rotation experiments. Ky.

A series of crop rotation and tillage experiments. (Garden City Substation) Kans.

Systems of crop rotations. Ala.

A comparison of the effect of crimson clover, cowpeas, and velvet beans as summer crop, and oats as a winter crop in a two-year rotation with cotton. La.

A comparison of yields in a two-year rotation of corn and cotton, with the yields from a two-year rotation of corn and soy beans, followed by cotton. La.

Three-year rotation experiment. Cotton, corn, and peas; oats followed by peas. (North Louisiana Substation, Calhoun) La.

A three-year rotation of corn and velvet beans, cotton, and corn and cowpeas with labor records for preparation, cultivation, and harvesting. (North Louisiana Substation, Calhoun) La.

Medium red clover in rotation of corn, wheat, barley, and clover. (West Central Substation, Morris) Minn.

Rotation of crops, including continuous cropping of corn, cotton, and oats, with two-, three-, and four-year rotations with legumes planted in and between regular crops; also silage corn and crimson clover. (Starkville, Holly Springs, and Raymond Substations) Miss.

Rotation experiment.--To compare yields of crops grown in one, two, and three year rotations with and without legumes. (Swannanoa, Kingsboro, and Statesville Substations.) N.C.

Three-year rotation of oats, clover, and corn, applying six tons of manure preceding corn. (West Central Substation, Morris) Minn.

Clover each four years in rotation with grain, potatoes, and beets, and each fifth year a block of alfalfa. Oreg.

Three-year rotation of grain, alsike clover, and beans. Oreg.

Rotations. (Cont.)

Four-year rotation with peas and oats, timothy and clover. (Astoria Substation) Oreg.

Corn, potatoes, rye and rowen, one to three years of grass, including one rotation with and one without legumes. R.I.

Five-year rotation of oats, clover hay, timothy and clover hay, corn, and wheat, applying ten tons manure, preceding corn. (West Central Branch Station, Morris) Minn.

Potatoes, corn with grass and clover seeded in it and left to grow five years subsequently. R.I.

Eight-year rotation without manure, four years cereal crop and four years alfalfa. (West Central Branch Station, Morris) Minn.

The influence of rotations upon the maintenance of soil fertility. S.Dak.

Fertility experiments in a five-year rotation. Tenn.

To determine the comparative effect of live stock, grain, and commercial fertilizer systems on the yields of crops in rotation. Okla.

To compare the effect of grain, live stock, and diversified farming systems on kafir, wheat, and annual legumes in rotation. Okla.

Use of crop residues applied at rates from 0 to 2 tons per acre upon rotation of corn and wheat. (West Central Branch Station, Morris) Minn.

Sweet clover as a crop for soil improvement in a 3-year and a 4-year rotation. Ill.

Rotations. A comparison of the value of green manures, barnyard manures, cultivated crops and summer fallow. Wyo.

Study of crop rotations v. continuous cropping. Del.

Alternate and continuous cropping. Minn.

Alternate v. continuous cropping. (Northwest Experiment Station, Crookston) Minn.

Rotation of crops to compare yields with continuous cropping yields of the same crops. (In cooperation with the Office of Western Irrigation Agriculture, U.S.D.A.) (Hermiston Substation) Oreg.

Continuous cropping without clover or manure. (Northeast Demonstration Farm, Duluth) Minn.

Rotations. (Cont.)

To test the effect of continuous cropping with oats as a fall and winter crop and soy beans as a summer crop. La.

A comparison in yields from continuous cropping with the following combinations: (a) Corn and cowpeas; (b) corn and soy beans; (c) corn and velvet beans; (d) cotton; and (e) lespedeza. La.

Crop rotation and fertilizer experiments.--To determine the influence of various rotations maintaining soil fertility. Mo.

A study of various crop rotations and the effect of the preceding crop upon yield. 50 tests in all. Ohio.

Fertilizer - rotation experiments. Ala.

Rotation and fertility investigations. Idaho.

Rotations and fertility tests. (Greenville Substation) Utah.

Soil experiment fields; including various rotations with various fertilizer treatments. Ky.

Crop rotation and soil fertility experiments. Tests of crop rotations, commercial fertilizers, and manure. Kans.

Crop rotation and fertilizer experiments.--To make comparative studies of various rotations and fertilizer applications in regard to their effect upon crop and soil. Nebr.

Crop rotation and fertilizer studies.--To determine the relative merits of several different crop rotations and to compare different systems of fertilization, including commercial fertilizers and farm manures. Ind.

Fertilizers and manures applied to different crops of a rotation. Ohio.

Cullers' rotation of crops, including tests of rock v. acid phosphate. Ala.

Commercial fertilizers applied to rotations. (In cooperation with the Office of Western Irrigation Agriculture, U.S.D.A.) (Hernston Substation) Oreg.

Studies in crop rotations.--To study the most profitable point in the rotation to apply the usual fertility measures practiced by Maryland farmers. Md.

Rotations. (Cont.)

Three two-year rotations in which two tons per acre of manure is applied.
(West Central Branch Station, Morris) Minn.

Barnyard manure at rates from 0 to 32 tons per acre upon four-year rotation
of corn, wheat, barley, clover. (West Central Branch Station, Morris) Minn.

Experiments to determine the best place for the application of farmyard
manure in a standard five-year crop rotation. Tenn.

A study of the comparative returns from manure applied immediately prior to:
(a) The seeding of wheat; and (b) the seeding of cowpeas in a cowpea-wheat
rotation. Tenn.

A study of the effects of different fertilizers, lime and plaster, and dif-
ferent amounts and sources, on the production of corn, oats, and mixed
clover and timothy in rotation. Pa..

Where fertilizers may be applied to best advantage in a given rotation, and
whether in small quantities frequently or large quantities less frequent-
ly. Va.

To determine the production of corn, sweet potatoes, and peanuts in rotation
and using various forms of commercial fertilizer and lime. Fla.

Potatoes, rye as green manure for squashes, onions, wheat and rowen, grass.
Fertilizer used in most cases. Comparison of manure with fertilizer for
corn. Different amounts of fertilizer elements and of fertilizer compared.
R.I.

Fertilizer experiments with dark tobacco and crops grown in rotations with it.
(Appomattox and Charlotte Court House Substations) Va.

Fertilizer tests with bright tobacco and crops grown in rotation with it.
(Chatham Substation) Va.

Silage corn with grass and clover seed in it, grass, oat and pea hay followed
by rutabagas; cow manure with straw bedding v. planer shavings bedding, the
latter with different amounts of phosphorus and of potassium, all compared
with fertilizer alone. R.I.

Fertilizing the dairy farm rotations: (a) Shall the manure be applied on the
corn or hay? (b) Does it pay to reinforce manure (12 tons on corn) with
acid phosphate? (c) Does it pay to add fertilizer (as a starter) to manure
(12 tons) on corn? Conn. Storrs.

Rotations. (Cont.)

Fertility investigations with continuous cropping (corn) on Wisconsin drift soil. The effect of manure and lime. Iowa.

Fertility investigations with a two-year crop rotation system on Wisconsin drift soils: (a) The effect of manure and crop residues, (b) the effect of rock phosphate with manure (live stock system), and (c) the effect of rock phosphate with crop residues (grain system). Iowa.

Fertility investigations with a three-year crop rotation system on Wisconsin drift soils: (a) The effect of manure and crop residue, (b) the effect of rock phosphate with crop residues (grain system), and (c) the effect of rock phosphate with manure (live stock system). Iowa.

Fertility investigations with a four-year crop rotation system on Wisconsin drift soils: (a) The effect of various applications of manure and of crop residues, (b) the effect of rock phosphate, bone meal, acid phosphate, potassium salts and complete commercial fertilizers with manure (live stock system), (c) the effect of the same fertilizers with crop residues (grain system, no manure), (d) the applications of complete commercial fertilizers broadcasted or applied in the hill, and (e) the effect of limestone and air-slaked lime. Iowa.

Fertility investigations with a five-year crop rotation, including alfalfa on Wisconsin drift soils: (a) The effect of manure and crop residues, (b) the effect of rock phosphate and acid phosphate with manure (live stock system), and (c) the effect of phosphates with crop residues (grain system). Iowa.

Fertilizer treatment of truck crops in a three-year rotation on a typical trucking soil in southern Illinois. Ill.

Crop rotation studies.--To study and compare the yields of grains in various crop rotations, manured and unmanured, in an effort to obtain information which will aid in forming the basis of a definite crop rotation for this part of the State. (Langdon Substation) N.Dak.

Irrigation rotation trials.--To establish practicable and profitable rotation of crops under irrigation that are especially applicable to conditions in western North Dakota, with special reference to the growing of sugar beets, potatoes, and alfalfa for both hay and hog pasture. Also the effect of continuous cropping of wheat, potatoes, alfalfa, and sugar beets under irrigation. (Williston Substation) N.Dak.

Fertility rotations. Cooperative irrigation rotations. (Hermiston, Burns and Medford Substations) Oreg.

Rotation, fertilizer, and soil improvement investigations. A study of practical rotations in various agricultural regions of the State. Tex.

Rotations. (Cont.)

Studies of crop rotations for northern Wisconsin. A study of laws underlying adaptation of crops. Wis.

Fertility rotations. Eighteen rotations on Willamette silty clay loam. Oreg.

To determine the advisability of growing alfalfa, corn, and annual legumes in a rotation on bottom land. Okla.

Rotation tests on dry land. (North Montana Substation) Mont.

Dry land rotation and tillage experiments.--To determine the proper rotation and crop sequence, and the most desirable tillage methods for farming in western North Dakota. (In cooperation with the Office of Dry Land Agriculture, U.S.D.A.) (Dickinson and Nettinger Substations) N.Dak.

Fertility rotations. Twenty-nine cooperative dry land rotations. (More and Burns Substations) Oreg.

Crop rotation experiments.--To determine: (a) What crops if any can be partly or entirely substituted for bare fallow in dry-land grain production; (b) the best order or sequence to grow cultivated crops in a rotation with grain on dry land; and (c) the effects on yields of grain of turning under various grain and leguminous crops for green manure as compared with bare fallow without manurial or fertilizer applications. (More Substation) Oreg.

Rotation on burned forest soil. (Northeast Demonstration Farm, Duluth) Minn.

Rotation following delayed clearing. (Northeast Demonstration Farm, Duluth) Minn.

Potato investigations. Rotation tests. (Northwest Experiment Farm, Crookston) Minn.

Types of rotations with and without tobacco. (Appomattox Substation) Va.

Forage crops investigations. Succession of crops or rotation trials with vetches and other forage crops. (In cooperation with the Office of Forage Crops Investigations, U.S.D.A.) Oreg.

Rotations.--To develop the best system of rotations adapted to the strawberry section, with the idea of increasing humus and soil fertility in the most economical manner. (Fruit and Truck Experiment Station, Hammond) La.

Rutabagas.

Use of rye as cover crop between successive crops of rutabagas. (Northeast Demonstration Farm, Manti) Minn.

Rye.

Rye breeding. Wis.

Breeding rye. (In cooperation with the Office of Cereal Investigations, U.S. D.A.) N.Y. Cornell.

Breeding work with rye. S.C.

Rye, oat, and barley breeding. Wis.

Self-fertilizing experiments with rye. Minn.

Cereals. Selection and breeding with wheat, barley, and rye. (Union Substation) Oreg.

Cereal investigations. Nursery trials with wheat and rye selections and wheat-rye hybrids. (In cooperation with the Office of Cereal Investigations, U.S. D.A.) Oreg.

Rye production: Varieties, breeding, and cultural methods. Ark.

Rye: Variety tests and cultural experiments. Va.

Variety testing, breeding, acclimatization and cultural studies of small grains.--To improve the quality and yield of small grains, including winter wheat, oats, spring wheat, rye, winter barley, and winter emmer. Nebr.

Grain growing on field scale.--To test barley, oats, wheat (spring and winter), winter rye, and buckwheat on a field scale, including also variety tests. Alaska.

Rye variety test. Ala.

Rye variety tests.--To find a winter rye which shall be entirely hardy in Alaska. Alaska.

Rye - variety tests. (Valentine Substation) Nebr.

Variety test of rye. (North Central Branch Station, Grand Rapids) Minn.

Variety tests of rye. (Appomattox, Bowling Green, Chatham, Lightfoot, Martinsville, Staunton, and Charlotte Court House Substations) Va.

Rye. (Cont.)

Cereal variety tests.--To test new and standard varieties of spring wheat, oats, barley, and winter rye, as to yielding capacity, resistance to disease, and trade value as measured by milling and baking tests. N.Dak.

Variety tests of oats, barley, flax, winter rye, soy beans, millet, buckwheat, and field peas. Minn.

Winter rye.--To determine the hardiness of various varieties of winter rye and their comparative yields. (Langdon Substation) N.Dak.

Experiments with rye.--To determine what varieties are best adapted to this region, especially in winter hardiness. (Dickinson Substation) N.Dak.

Studies of varietal resistance of wheat, barley, rye, and oats to root rotting organisms. Minn.

Date and rate of seeding of rye and winter wheat. (Northeast Demonstration Farm, Duluth) Minn.

Date of seeding winter wheat, winter rye, and barley. (Northwest Experiment Farm, Crookston) Minn.

Rate of seeding winter rye and winter wheat. (North Central Branch Station, Grade Rapids) Minn.

Pate and date of seeding oats, wheat, barley, and rye. Minn.

Rye and sweet clover trials.--To determine the wisdom of the practice of seeding sweet clover in the fall with winter rye in different sections of the State. (Langdon Substation) N.Dak.

Rye, emmer, and miscellaneous grains. Idaho.

Silage crops. (See also Feeding stuffs, Silage and silage feeding experiments.)

Silage crops. Ala.

Study of silage crops. (Northeast Demonstration Farm, Duluth) Minn.

Variety tests of silage crops. (In cooperation with the Office of Western Irrigation Agriculture, U.S.D.A.) (Hermiston Substation) Oreg.

Comparative tests of individual species and combinations for silage. (Astoria Substation) Oreg.

Ensilage corn variety tests.--To determine the relative yield, maturity, and adaptability of the varieties in the different sections of the State and to compare them with other local or favorite varieties. N.H.

Silage crops. (Cont.)

Variety tests of corn for the production of silage. (Aberdeen Substation) Idaho.

A study of types of corn for silage. The loss of nutrients in the process of silage making. The comparative feeding value of corn silage from types of corn ranging from a type not maturing ears to a type producing practically mature grain in the latitude of southern New York. N.Y. Cornell.

Cultural tests of corn for silage production. Idaho.

Soft corn silage. Ensiling the soft ear corn. Iowa.

A study of silage corn and supplementary silage crops, especially sunflowers and soy beans, including such factors as the stage at which corn is most valuable for silage purposes per pound of dry matter; the variety which will produce the greatest amount of dry matter per acre; the effect of an irregular stand on the yield of corn; the productivity and adaptation of sunflowers for silage purposes; the varieties of soy beans best suited for silage purposes; the effect of planting date on the development and yield of corn. N.Y. Cornell.

Sunflower silage. (Huntley Substation) Mont.

Sunflowers as a silage crop for Wisconsin. Wis.

Improvement of sunflowers for silage production by selection and breeding. Idaho.

Rate of seeding sunflowers as related to yield of silage. (Aberdeen Substation) Idaho.

On relative value of sunflowers and Indian corn as silage crops. Calif.

Sunflowers as compared to corn for silage. (Hettinger Substation) N.Dak.

Corn versus sunflowers for silage.--To determine the relative yields and feeding value of corn and sunflowers for silage. (Dickinson Substation) N.Dak.

A comparison of sunflowers, sorghum, and corn for silage. Ga.

Crops for silage, including corn, different varieties of sorghum, and sunflowers. Miss.

Silage. A comparison of the value of sweet clover and sunflower silage with corn silage. N.Dak.

Silage.--To determine the practicability of utilizing sweet clover as a silage crop, the best method of preparing such silage, and its value as a feed for farm animals. N.Dak.

Silage crops. (Cont.)

Silage.--To determine the best stage of maturity at which to harvest sweet clover and sunflowers for silage and the optimum moisture content for making silage of these crops. N.Dak.

Silage investigations. The composition of sweet clover and sweet clover silage. Idaho.

Silage crop investigations. Artichokes as a silage crop. Idaho.

Rotting of steckling beets in silos. Colo.

Silage investigations. Observations on the stage of oat and vetch crop for silage. Oreg.

Rape as material for silage. Ensiling rape. Iowa.

A test of the practicability of growing soy beans with corn for ensilage. Pa.

Soy beans, yellow, as late as will produce viable seed, suitable for silage. R.I.

Silage crops for northern Michigan. (Upper Peninsular Substation) Mich.

Comparison of various kinds of silage and roots for northern Wisconsin. Wis.

Sorghums.

Inheritance in grain sorghums. Tex.

A study of inheritance of black hulled white kafir. Okla.

Breeding experiments with wheat, oats, corn, and sorghums. Kans.

Crop improvement by mass and individual plant selection, including small grains, corn, grain sorghums, and peanuts. Tex.

Improvement of saccharine sorghum by selection. Wis.

Cereal investigations. Varietal and cultural tests and breeding work with wheat, oats, barley, corn, and grain sorghums. (In cooperation with the Office of Cereal Investigations, U.S.D.A.) (Fort Hays Substation) Kans.

Forage crops. Sorghum variety tests. Miss.

Variety tests with sorghum. S.C.

Irrigation agriculture investigations. Varietal tests of sorghum, corn, and small grains. (Garden City Substation) Kans.

Sorghums. (Cont.)

- ... of grain sorghums.--To determine the yields of different varieties of grain sorghums, as shown by competitive tests. Okla.
- A comparison of the leading varieties of sorghum both for green and dry forage. Ala.
- A comparison of the most important grain sorghums with corn for grain and forage production. Mo.
- Varietal experiments with grain sorghum.--To determine whether grain sorghum will mature in the average season, and if so, to compare its yield with corn and other grain crops. (Dickinson Substation) N.Dak.
- Variety tests of sweet sorghums.--To determine the yields of different varieties of sweet sorghums as shown by competitive tests. Okla.
- Varieties of sorghum for sirup. Ala.
- A study of the varieties and methods of culture of Indian corn and the various sorghums. Ariz.
- Cultural experiments with kafir corn.--To find the effect of weeds and soil mulches on yield of kafir corn. Okla.
- To determine the best method of planting grain sorghums and cowpeas together. Okla.
- To determine the best rate to use in planting kafir. Okla.
- Forage crops - millet, sorghum, and Sudan grass.--To test the relative forage yields of the annual grasses, millet, sorghum, and Sudan grass. (Dickinson Substation) N.Dak.
- The production of sirup, grain, and forage from sorghum in Arkansas. Ark.
- Animal forage crops. Sudan grass and other sorghums. Ohio.
- A study of the formation of sucrose in the sweet sorghums.--To determine which variety produces most sucrose per acre, in which variety its production is most rapid, at what stage of growth it has the highest content, the variety with the highest coefficient of purity in the juice, and effect of removal of the green head on sucrose in stalk. Okla.
- Chemical study of the grain sorghums. Okla.
- Peanuts, sorghums, legumes.--To keep in timely touch with subjects that are constantly coming up, not of sufficient importance for separate projects. Okla.

Soy beans.

Genetic studies in soy beans. Ill.

Soy bean breeding. Ind.

Breeding and cultural work with soy beans. Idaho.

Soy bean breeding and cultural studies. Wis.

Soy bean breeding for varieties especially suited to Iowa conditions. Iowa.

Breeding soy beans for northern Wisconsin sandy soils. Soy bean culture experiments in northern Wisconsin. Variety tests with soy beans on sandy soils. Wis.

To isolate more adaptable and higher yielding strains of cowpeas, soy beans, and mung beans for Porto Rico. P.R.

Breeding for high and low oil in soy beans. Ill.

Soy bean oil work.--To select a high yielding strain of soy beans that will have a high oil content. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.) N.C.

Selection and varietal trials with soy beans. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.) Oreg.

Soy beans: Variety, cultural, and breeding work. Ohio.

Soy beans: Variety tests. Ala.

Soy bean variety test. (Southeast Demonstration Farm, Waseca) Minn.

Varietal trials of soy beans. Del.

Variety tests with soy beans. S.C., (Appomattox, Bowling Green, Chatham, Holland, Lightfoot, Martinsville, Staunton, and Charlotte Court House Substations) Va.

Soy beans: Study of variety and strains of soy beans. Mich.

Soy beans. Over State variety tests. Mich.

Variety test of soy beans.--To determine the forage value of hardy varieties of soy beans. (Dickinson Substation) N.Dak.

Variety tests, including corn, cotton, soy beans, cowpeas, and mung beans. (North Louisiana Experiment Station, Calhoun) La.

Soy beans. (Cont.)

Variety test of field peas and soy beans, with field planting, etc. (North Central Branch Station, Grand Rapids) Minn.

Variety tests of oats, barley, flax, winter rye, soy beans, millet, buckwheat, and field peas. Minn.

Variety trials with various farm crops, such as corn, wheat, oats, soy beans, vetch, etc. Tenn.

Soy bean investigation. Adaptation of imported varieties, selection of superior types, and tests of yields for hay and seed of varieties. Md.

Variety tests of soy beans for grain and hay. La.

A study of the adaptation of the important varieties and selections of soy beans to the various soil types of the State. (In cooperation with the U.S. Department of Agriculture) Mo.

Cooperative variety trials with field and soy beans in Malheur County. Oreg.

Varieties of soy beans and soy beans v. oats in rotation. Pa.

Soy bean investigations, including variety tests, methods of seeding, and planting alone and with other crops. W.Va.

Determination of the relative value of different varieties of soy beans for both hay and seed, and the adaptation of the several varieties to the different sections of the State. Ill.

Soy beans: Varieties, culture, and yields of hay and grain. Va.

Soy bean production. Cultural tests. Iowa.

Date and rate of seeding and methods of cultivation of soy beans. Minn.

Rate of seeding and cultural methods in the production of soy beans. Ind.

Soy beans, yellow, as late as will produce viable seed, suitable for silage. R.I.

Effect of fertilizer and lime upon nitrogen and protein content of soy beans. Del.

Comparison cropping of corn and soy beans. Ill.

Growing corn and soy beans together. Ky.

A test of the practicability of growing soy beans with corn for ensilage. Pa.

Investigation of associated growth of soy beans and corn. Wis.

Soy beans. (Cont.)

A comparison of distance apart to plant corn, corn and soy beans, and sunflowers. Minn.

Comparison of soy beans and cowpeas for hay and seed production. Mo.

Comparison of alfalfa, sweet clover, cowpeas, and soy beans as hay crops. (Bowling Green Substation) Va.

Place soy beans could occupy in the farm rotation. Md.

Soy bean tests.--To determine if soy beans are at all suitable to this territory. (Langdon Substation) N.Dak.

Soy bean trials. (Valentine Substation) Nebr.

Soy bean tests. Nebr.

Soy bean studies. Composition and yields at different stages of growth. Iowa.

Effect of selection on the oil and protein content of the soy bean. Ill.

Effect of inoculation of soy bean seed on nitrogen content of plants. Wis.

Sudan grass.

Sudan grass seed studies and breeding. Iowa.

The inheritance in crosses between Sudan grass and Johnson grass.--To determine the mode of inheritance of the root systems in crosses between Johnson grass and Sudan grass. Ga.

A study of the cultural requirements and adaptation of Sudan grass.--To determine the adaptation of Sudan grass and ascertain the most satisfactory cultural practices. Mo.

Cultural experiments with Sudan grass. Idaho.

Date, rate, and methods of seeding Sudan grass. Ind.

Sudan grass rate and date test.--To determine the best rate and date, both in rows and close drilled, to seed Sudan grass. Okla.

Rate of seeding Sudan grass and cowpea mixture for hay. Ala.

Sudan grass v. Hungarian millet.--To determine the possibilities of Sudan grass as a hay crop in this part of the State. (Langdon Substation) N.Dak.

Value of Sudan grass as forage crop for Wisconsin. Wis.

Sudan grass. (Cont.)

Forage crops - millet, sorghum, and Sudan grass.--To test the relative forage yields of the annual grasses, millet, sorghum, and Sudan grass.
(Dickinson Substation) N.Dak.

Nutrients in forage crops. Chemical contents of forage crops, particularly hydrocyanic acid in Sudan grass. Kans.

Annual forage crops. Ohio.

Sugar beets.

Sugar beets: Breeding work. Mich.

Seed production. Sugar beets: Selection and improvement of sugar beets for high sugar content by propagation of mother beets showing highest percentage of sugar. (Aberdeen Substation) Idaho.

Sugar beet investigations. Variety tests. Idaho.

Variety tests of sugar beets. La.

Sugar beets. Varietal testing. Mich.

Sugar beets: Rate and date of planting. Mich.

Sugar beet studies: (a) To determine best date of spring planting and best date of fall planting, (b) to compare the furrow v. flooding method of irrigation, and (c) to compare effect on germination of irrigating before planting and irrigation after planting. (In cooperation with the Office of Sugar Plant Investigations, U.S.D.A.) N.Mex.

Sugar beets. Cultural and fertilizing tests. (Scottsbluff Substation) Nebr.

To determine the causes that have been active in the Arkansas Valley in the prevention of a high sugar content in sugar beets. Colo.

Sugar beet seed production. (In cooperation with the Bureau of Plant Industry, U.S.D.A.) (Upper Peninsular Substation) Mich.

Sunflowers. (See also Silage crops.)

Sunflowers: Breeding work. Mich.

Improvement of sunflowers for silage production by selection and breeding. Idaho.

Sunflowers. (Cont.)

Sunflowers: Varietal testing. Mich.

Sunflower investigations, including a trial of types, selection for improvement, and rate of seeding. W.Va.

Cultural experiments with sunflowers. Idaho.

A comparison of distance apart to plant corn, corn and soy beans, and sunflowers. Minn.

Rate of seeding sunflowers as related to yield of silage. (Aberdeen Substation) Idaho.

Sunflower v. corn trial.--To determine the value of sunflowers as compared to corn in the production of fodder. (Langdon Substation) N.Dak.

Sunflowers as a silage crop. (Valentine Substation) Nebr.

Sunflowers as a silage crop for Wisconsin. Wis.

Sunflower production from native seed. (Northeast Demonstration Farm, Duluth) Minn.

Sunflower investigations. The composition of sunflowers at different periods of growth. Idaho.

Sunflower investigations. The composition of the ash of sunflowers at different periods of growth. Idaho.

Sweet clover. (See clover, sweet.)

Sweet potatoes.

Sweet potato seed selection.--To determine the relative value of seed stock from high yielding and low yielding hills (disease free stock only to be used) as regards: (a) Productivity, (b) uniformity of potatoes as to size, type, etc.--To determine the relative value of vine cuttings as compared with slips for maintaining yield and type, commencing from same hill. To determine the comparative value of large and small potatoes for seed. N.C.

Sweet potatoes. Progeny of single potato.--To determine whether and to what extent improvement as to yield and type can be effected by selection within a given strain. (Coastal Plain Substation, Willard) N.C.

Sweet potatoes. - Variety studies. Ky., Miss.

Sweet potatoes. (Cont.)

Sweet potato variety tests. Ala.

Sweet potato variety testing.--To determine productivity, market values, keeping qualities, earliness, and quality of all varieties. (Coastal Plain Substation, Willard) N.C.

Varieties of sweet potatoes best suited to the section, and also a study of the control of various diseases. Okla.

To learn best varieties and cultural methods for yautias, dasheens, and sweet potatoes for Porto Rico. P.R.

Sweet potato cultural practices.--To determine the comparative value of slips v. vine cuttings as regards productivity; the effect of ridging on productivity and type of potatoes; the effect of vine cuttings on yield. (Coastal Plain Substation, Willard) N.C.

Production of sweet potato plants by two or more fire heated bed systems. Ala.

Fertilization of sweet potatoes. Ga.

Fertilizer experiments with sweet potatoes. Ala.

A study of fertilizers for sweet potatoes. Md.

Plant food studies with sweet potatoes. N.J.

Rate of fertilizing sweet potatoes. Ala.

Sweet potato manuring tests.--To determine value of farmyard manure in the culture of sweet potatoes. Virgin Islands.

Rotation and fertilizer experiments with corn, sweet potatoes, and peanuts.--To determine the production of corn, sweet potatoes, and peanuts in rotation and using various forms of commercial fertilizers and lime. Fla.

Sweet potatoes. Variety, fertilizer, culture, harvesting, and curing tests. (Holly Springs and Raymond Substations) Miss.

A study of cultural and storage methods of the sweet potato. Ariz.

Sweet potato curing and storage. Ala.

Sweet potato storage. (South Mississippi Substation) Miss.

Sweet potato storage.--To determine the best keeping varieties of sweet potatoes and the amount of shrinkage in varieties in storage. To collect notes and information on storing, curing, and operating a storage house. To study the relation of temperature, time of harvest, maturity, and frost to the keeping quality of sweet potatoes. (Coastal Plain Substation, Willard) N. C.

Sweet potatoes. (Cont.)

Nature of the physiological changes in stored sweet potatoes. Ala.

Sweet potato storage and storage diseases. Tex.

A study of the factors involved in curing and shipping of sweet potatoes. Ark.

Sweet potatoes. Comparison of seed from late vine cuttings with seed from main crop draws, as regards productivity, type, and keeping quality. (Coastal Plain Substation, Willard) N.C.

A study of conditions influencing the blossoming and seeding habit of sweet potatoes.--To induce the sweet potato to flower and form seed that can be used to produce new varieties: (a) Special, (b) observational. (Coastal Plain Substation, Willard) N.C.

Correlation of the development of the sweet potato tuber to vine growth, temperature, and moisture. Md.

Sweet potato investigations. S.C.

Timothy.

Breeding timothy. N.Y. Cornell.

Timothy selection.--To secure a superior strain particularly suited to New Hampshire. N.H.

Timothy improvement. Pa.

The improvement of timothy. Minn.

A test of timothy strains produced by U.S.D.A. timothy breeding station at Elyria, Ohio. Ohio.

Tobacco.

Selection and cross breeding of tobacco. Wis.

Breeding cigar filler tobacco. Ohio.

A study of the transmission of complex characters, such as yield and quality, in a cross of two widely grown strains of tobacco. Conn. State.

Sterility of hybrids of Nicotiana. Pa.

Tobacco. (Cont.)

Tobacco experiment.--To test Davis-Simmer hybrid. Pa.

A study of two varieties of tobacco to determine whether the differences which appear in different regions are at all due to heritable character or only to environmental conditions. Conn. State.

To compare different strains of shade grown tobacco as a basis for further selection. (Tobacco Substation, Windsor) Conn. State.

Strain tests of burley tobacco. Ky.

Maryland export tobacco investigations.--To improve by breeding and selection; to determine the best fertilizers; best systems of crop rotation, methods of growing, curing, and handling; and control of important diseases. Md.

Variety tests with tobacco. (Appomattox, Bowling Green, Chatham and Charlotte Court House Substations) Va.

Variety test of cigar filler tobacco. Pa.

To study the different varieties of tobacco with respect to yield and commercial quality. (In cooperation with the U.S. Department of Agriculture) (Oxford and Reidsville Substations) N.C.

Variety, fertilizer, and insect enemy studies of tobacco.--To determine the most desirable variety or varieties of tobacco for Guam; to study the insect pests and determine the best methods for their destruction; and to determine the fertilizer requirements of tobacco on the different soil types of Guam. Guam.

A test of the value of the new type of tobacco called "Round Tip". (Tobacco Substation, Windsor) Conn. State.

To compare the value of different strains of Havana and Broadleaf tobacco. (Tobacco Substation, Windsor) Conn. State.

Tobacco variety and curing tests. Cooperative. W.Va.

Rate of transplanting tobacco. Ky.

Closer planting combined with more intensive fertilizing.--To study effect on yield and quality of tobacco by planting at different thicknesses and fertilizing more heavily. (In cooperation with the U.S. Department of Agriculture) (Oxford and Reidsville Substations) N.C.

Fertilizer tests with tobacco. Ky.

Tobacco. (Cont.)

Fertilizer experiments with dark tobacco and crops grown in rotations with it.
(Appomattox and Charlotte Court House Substations) Va.

Fertilizer tests with bright tobacco and crops grown in rotation with it.
(Chatham Substation) Va.

Fertilizer experiments with sun-cured tobacco and other crops grown in rotation with it. (Bowling Green Substation) Va.

Fertilizer tests.--To determine the correct amount, right proportions and most efficient carriers of plant food materials for tobacco in rotation. (In cooperation with the U. S. Department of Agriculture) (Oxford and Reidsville Substations) N.C.

Fertility experiments with tobacco.--To determine the effects of various fertilizers, used singly and in combination, on the yield and quality of the tobacco. (In cooperation with the Office of Tobacco and Plant Nutrition Investigations, U.S.D.A.) (Clarksville Substation) Tenn.

Sources of ammonia used in tobacco fertilizers. (Chatham Substation) Va.

Effect of liberal humus supply on bright tobacco.--To study effect of humus on quality of tobacco. (In cooperation with the U.S. Department of Agriculture) (Oxford and Reidsville Substations) N.C.

Fertilizer tests with tobacco to compare the value of mineral forms of nitrogen with vegetable and animal forms. (Tobacco Substation, Windsor) Conn. State.

Special potash experiments with tobacco.--To note effect of the addition of different kinds and amounts of potash for tobacco. (In cooperation with the U. S. Department of Agriculture) (Oxford and Reidsville Substations) N. C.

Tobacco seed production. Md.

Permanent tobacco seed bed. The practicability of maintaining the seed bed in the same place. (In cooperation with the U. S. Department of Agriculture) (Oxford and Reidsville Substations) N.C.

Effect of various systems of cropping on the yield and quality of dark leaf tobacco. (In cooperation with the Bureau of Plant Industry, U.S.D.A.) (Clarksville Substation) Tenn.

Relation of chemical characters to quality in leaf tobacco. Ky.

Effect of leaving tops on plants on the quality of cigarette tobacco.--To determine whether a milder and more desirable cigarette cutter can be produced by leaving the plants untopped as is done with Turkish tobacco. (In cooperation with the U. S. Department of Agriculture) (Oxford and Reidsville Substations) N.C.

Tobacco. (Cont.)

A study of the effects of soil reaction alone on the growth and development of tobacco. Mass.

Fermentation of tobacco. Ohio.

Crop relations, comparative effect of tobacco and other crops on yields of succeeding crops. (In cooperation with the Bureau of Plant Industry, U.S.D.A.) Md.

Study of the effect on quality and yield of tobacco after other crops and maintaining the humus supply of the soil. (In cooperation with the U.S. Department of Agriculture) (Oxford and Reidsville Substations) N.C.

Types of rotations with and without tobacco. (Appomattox Substation) Va.

Rotation experiments with tobacco. Ky.

Investigations relating to the establishment of standard grades of tobacco. (In cooperation with the Bureau of Markets, U.S.D.A.) Ky.

Establishing standard grades of tobacco.--To standardize grades of tobacco in view of assisting the growers in marketing their tobacco more profitably. (Reidsville and other Substations) N.C.

Growing tobacco of high nicotin content for use as an insecticide. N.Y. State.

Variety tests, general.

Varietal tests. (Northwest Experiment Station, Crookston) Minn.

Crop variety test. Tex.

Variety tests of farm crops. Ga.

Variety trials of various farm crops. (Jackson Substation) Tenn.

Tests of species and varieties of farm crops. N.J.

Variety tests of common field crops. (Raymond Substation) Miss.

Cooperative variety trials of farm crops. (Branch Stations) Minn.

Variety trials.--To make a study of the comparative ability of new and of standard varieties of grains, grasses, tubers, root crops, legumes, and forage crops, in adjusting themselves to conditions in northern latitudes where precipitation is deficient. (Williston Substation) N.Dak.

Variety tests, general. (Cont.)

Variety studies of field crops suited to Coastal Plains soils. (South Mississippi Substation) Miss.

Variety studies for field crops for the Delta. (Delta Substation) Miss.

Crop variety tests, especially wheat. (North Platte Substation) Nebr.

Variety trials with various farm crops, such as corn, wheat, oats, soy beans, cotton, etc. Tenn.

Testing varieties of farm crops.--To determine the relative merits of all the more or less promising varieties of farm crops that can be found, and which may be of interest to Indiana agriculture. Ind.

A varietal and cultural test of grain, grasses, and miscellaneous crops. Ariz.

Field crop investigations under both dry farming and irrigation. Varietal trials with wheat, oats, barley, rye, field peas, corn, alfalfa, sunflowers, grasses, potatoes, and other minor crops. (In cooperation with the Office of Cereal Investigations, U.S.D.A.) (Burns Substation) Oreg.

Velvet beans.

Velvet bean variety tests. Ala.

Variety tests with velvet beans. S.C.

Variety tests of field corn and velvet beans. Fla.

Corn and velvet beans.--Different methods of planting. La.

A chemical study of the velvet bean.--To determine in what respect the velvet bean is deficient in nutritive properties or is otherwise injurious. Ala.

A biological study of the nutritive value of the velvet bean. Ark.

Vetch.

Vetch production: Varieties, breeding, and harvesting. Ark.

Vetch variety tests. Ala.

Testing vetches for yields of hay. Va.

Forage crop investigations. Varietal trials with vetches for forage and seed. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.) Oreg.

Vetch. (Cont.)

Forage crop investigations. Nursery trials with vetches and related plants, new vetch varieties, and horse bean varieties. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.) Oreg.

Forage crop investigations. Cultural trials with vetches and related plants and with horse beans. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.) Oreg.

Forage crop investigations. Succession of crops or rotation trials with vetches and other forage crops. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.) Oreg.

Observations on the stage of oat and vetch crop for silage. Oreg.

Value of vetch sown in winter rye on sandy soils. (Spooner Substation) Wis.

Growing and thrashing vetch for seed. Ala.

Wheat. (See also Foods and human nutrition - Milling and baking.)

Genetics and breeding.

Mendelian studies with wheat and oats. N.Y. Cornell.

Wheat production: Breeding. Ark.

Wheat breeding. Ind.

Breeding wheat. Ala., (In cooperation with the Office of Cereal Investigations, U.S.D.A.) N.Y. Cornell.

Breeding work with wheat. Ky., S.C.

Cereal breeding investigations, primarily with wheat. (In cooperation with the Offices of Cereal and of Forage Crop Investigations, U.S.D.A.) (Moro Substation) Oreg.

Breeding experiments with wheat, oats, corn, and sorghums. Kans.

Cereals. Selection and breeding with wheat, barley, and rye. (Union Substation) Oreg.

Wheat. Practical wheat breeding. The production of a wheat variety combining the stem rust resistance (and baking qualities) of Kota with certain desirable characters of other varieties, such as strength of straw and lack of awns of Marquis. N.Dak.

Wheat. (Cont.)

Wheat breeding.--To develop, if possible, both spring and winter varieties which shall be suited to the Alaska climate. (Rampart Substation) Alaska.

Wheat breeding investigations, including the improvement of commercial varieties by the pure line method of breeding and hybridization and subsequent selection.--To improve quality and increase yield of winter wheat for Missouri. Mo.

Wheat breeding at Madison Station; wheat breeding in northern Wisconsin; variety tests of winter wheat and spring wheat. Wis.

Wheat: Studies of pure lines in wheat of the Kubanka and Kota varieties.--To obtain an improved strain (pure line) or mixture of such an improvement over the parent bulk variety and to obtain data upon the amount of correlation and variation which may exist among the various pure lines of a variety. N.Dak.

Wheat improvement through crossing and segregation. Mich.

Wheat improvement. Idaho, Pa.

Wheat investigations and improvement. Tex.

Improvement of wheat by selection. (In cooperation with the Office of Cereal Investigations. U.S.D.A.) Tenn.

Varietal improvement with wheat.--To improve existing varieties by selection and by crossing to produce new strains superior to those now grown. (Dickinson Substation) N.Dak.

Pure line selection and hybridization as methods of improvement of wheat. Ohio.

Comparisons of pure line selection with hybridization as a method of improvement in wheat. Ohio.

Pure line selection and hybridizing experiments with wheat, in order to secure a strain that will maintain its hardy qualities under Maine conditions. (Highmoor Substation) Me.

Plant-to-row selection of wheat. S.C.

Pure line studies with wheat. Iowa.

Wheat: Work in winter wheat.--To test hardiest strains of winter wheat, and by breeding these to develop new strains sufficiently hardy for North Dakota conditions. N.Dak.

Winter wheat studies.--To combine in a single variety winter hardiness and high milling quality. Minn.

Inheritance of variations induced by difference in nutrition of wheat. N.Y. Cornell.

To determine the mode of inheritance of rust resistance in wheat and to produce rust-resistant varieties. (In cooperation with the Office of Cereal Investigations, U.S.D.A.) Minn.

Inheritance of stem rust resistance of wheat. N.Dak.

A study of a cross of wheat and spelt as to resistance to stinking smut. Ohio.

Variety tests.

Wheat variety tests. Ala. (Valentine Substation) Nebr., S.C.

Wheat variety test. W.Va.

Variety studies with wheat. Iowa.

Variety tests of wheat. Ky., S.Dak., (Appomattox, Bowling Green, Chatham, Lightfoot, Martinsville, Staunton and Charlotte Court House Substations) Va.

Varietal trials of wheat. Del.

Crop variety tests, especially wheat. (North Platte Substation) Nebr.

Cereal investigations. Nursery trials with wheat and rye selections and wheat-rye hybrids. (In cooperation with the Office of Cereal Investigations, U.S.D.A.) Oreg.

Wheat production: Variety selection. Ark.

Wheat variety tests.--To find an early spring wheat and a hardy winter wheat. Alaska.

Variety tests of wheat.--To determine the yields of different varieties of wheat as shown by competitive tests. Okla.

A study of the varieties of wheat with a view to their improvement. Pa.

Wheat variety tests and improvement by selection and breeding. Md.

Cereal investigations. Wheat: Variety tests and cultural experiments. Va.

Wheat: Varieties, pure line selections and cultural work. Ohio.

Wheat. (Cont.)

Variety testing, breeding, acclimatization, and cultural studies of small grains.--To improve the quality and yield of small grains, including winter wheat, oats, spring wheat, rye, winter barley, and winter emmer. Nebr.

Variety tests of wheat, spring and winter. (North Central Branch Station, Grand Rapids) Minn.

Variety trials with various farm crops, such as corn, wheat, oats, soy beans, cotton, etc. Tenn.

Small grain investigations. Variety tests with wheat, oats, and barley. (Aberdeen and Sandpoint Substations) Idaho.

Dry-land agriculture investigations. Varietal tests of corn, wheat, oats, and barley. (Garden City Substation) Kans.

Small cereal investigations. Varietal trials of winter and spring grains, including wheat, oats, and barley. (In cooperation with the Office of Cereal Investigations, U.S.D.A.) Oreg.

Cereals. Varietal tests with wheat, barley, and oats. (Union Substation) Oreg.

Varietal trials, including wheat, barley, oats, field peas, corn, and potatoes. (In cooperation with the Offices of Cereal and of Forage Crop Investigations, U.S.D.A.) (Moro Substation) Oreg.

Cereal investigations. Varietal and cultural tests and breeding work with wheat, oats, barley, corn, and grain sorghums. (In cooperation with the Office of Cereal Investigations, U.S.D.A.) (Fort Hays Substation) Kans.

Cereal variety tests.--To test new and standard varieties of spring wheat, oats, barley, and winter rye as to yielding capacity, resistance to disease, and trade value as measured by milling and baking tests. N.Dak.

Grain growing on field scale.--To test barley, oats, and wheat (spring and winter), winter rye, and buckwheat on a field scale; including also variety tests. (Fairbanks Substation) Alaska.

A study of the performance of different varieties of spring wheat, barley, and emmer, and their adaptation to northern and central Illinois conditions. Ill.

A study of the performance of different varieties of winter wheat and of their adaptation to northern, central, and southern Illinois conditions. Ill.

Wheat. (Cont.)

A study of the adaptations of the important varieties of wheat for Missouri conditions. Mo.

Varietal experiments with wheat.--To determine what varieties are best adapted to this region. (Dickinson Substation) N.Dak.

Variety trials with wheat, oats, and barley.--To test out the various strains of these crops to determine the best variety for this section. (Edgeley Substation) N.Dak.

A survey of varieties of winter wheat in Pennsylvania. Pa.

Small grain investigations. Variety tests with wheat, oats, barley, and miscellaneous grains under high altitude conditions. (High Altitude Substation) Idaho.

Wheat: Over State variety test. Mich.

Wheat: Variety testing and head selection for early maturity. Wyo.

The development of rust-resistant varieties of wheat. Minn.

Studies of varietal resistance of wheat, barley, rye, and oats to root rotting organisms. Minn.

The resistance of wheat varieties to bunt. Minn.

The resistance of wheat varieties to wheat scab. Minn.

Culture experiments.

Wheat: Cultural practice. Mich.

Wheat production: Cultural methods. Ark.

General culture studies with wheat. Iowa.

Test of furrow method of seeding wheat; grain varietal tests; cultivation tests of corn; etc. Kans.

Experiments with the furrow method of seeding winter wheat. (Colby Substation) Kans.

Rate and date of sowing experiments, primarily with wheat. (In cooperation with the Offices of Cereal and of Forage Crop Investigations, U.S.D.A.) (Moro Substation) Oreg.

Date and rate of seeding of rye and winter wheat. (Northeast Demonstration Farm, Duluth) Minn.

Wheat. (Cont.)

Rate and date of seeding oats, wheat, barley, and rye. Minn.

Small grain culture work.--To study dates and rates of seeding wheat and oats at the Piedmont Substation, and oats at the Coastal Plain Substation. (In cooperation with the Office of Cereal Investigations, U.S.D.A.) N.C.

Rate, date, and depth of seeding winter wheat on dry land. (High Altitude Substation) Idaho.

Study of date of seeding spring wheat upon the yield and quality of the grain. Ill.

Date of seeding winter wheat, winter rye, and barley. (Northwest Experiment Farm, Crookston) Minn.

Date-of-planting experiments with wheat, oats, and barley. (Jackson Substation) Tenn.

Date of seeding wheat.--To determine the effect of date of seeding on the yield of wheat. (Langdon Substation) N.Dak.

Rate of seeding wheat. Ky.

Rate of seeding wheat, oats, barley, and corn. (Northwest Experiment Farm, Crookston) Minn.

Rate of seeding winter rye and winter wheat. (North Central Branch Station, Grand Rapids) Minn.

Rates and methods of seeding wheat. Ind.

Fertilizer tests.

Fertilizer experiment with wheat. (Martinsville and Staunton Substations) Va.

Triangular fertilizer experiments with cotton, corn, and wheat, followed by cowpeas, grown in rotation. Ga.

The effect of various combinations of fertilizer elements upon quality and yield of wheat. Del.

Use of nitrate of soda on wheat; fall and spring applications. Ky.

Soil fertility. A comparison of green manure and summer tillage for wheat. (North Platte Substation) Nebr.

Wheat varieties with reference to their capacity to utilize plant food. Del.

Wheat. (Cont.)

Chemical studies.

Tests (chemical) of wheat from Farm Crops section. Minn.

Chemical constituents of wheat. The relation of chemical composition to variation in commercial value of wheat of different classes and quality. N.Dak.

The relation of certain chemical and physical-chemical characteristics of Nebraska wheat to its milling and baking quality. Nebr.

The effect of available nitrogen upon the protein content and yield of wheat. Idaho.

Influence of cultivation on nitrogen content and yield of wheat. Wash.

The biochemistry of cold resistance in winter wheat. Minn.

Milling and baking.

Baking qualities of flour.--To determine the function of each of the components of flour and their importance in breadmaking. Wash.

Wheat milling and baking, to compare the qualities of wheat under test. Mich.

Studies of the chemical aspects of certain milling processes. Chemical and milling tests on wheat produced in various agronomic experiments and comparative chemical and milling behavior of Kanred and other winter wheat varieties. Kans.

Milling, baking, and macaroni experiments.--To determine the value of wheat varieties from a milling and baking standpoint, and to test the comparative value of Durum varieties for macaroni purposes. (Dickinson Substation) N.Dak.

Factors controlling milling and baking qualities in wheat. Comparative study of Durum, Poulard, and bread wheats. Ariz.

Durum wheat investigations.--To determine the value of different types of Durum wheat for use in manufacture of food products. N.Dak.

The effect of variety, soil, climatic conditions, and disease upon the milling and bread value and chemical composition of wheat. N.Dak.

Effect of storage on milling and baking quality and chemical composition of wheat. N. Dak.

The relation of certain chemical and physical-chemical characteristics of Nebraska wheat to its milling and baking quality. Nebr.

Wheat. (Cont.)

The strength of wheat flour - colloidal and other factors which may be involved in flour strength. Minn.

The biochemical changes in frosted wheat and their effects on the breadmaking quality and market value. Mont.

Miscellaneous.

Investigation of the practicability of wheat growing in Porto Rico. P.R.

Wheat increases for distribution. Mich.

Cereal investigations. Multiplication and comparison trials of winter wheat selections. (In cooperation with the Office of Cereal Investigations, U.S. D.A.) Oreg.

The effect of straw mulch to wheat upon the yield of wheat and the following clover. Ohio.

Sterile spikelets in wheat. Del.

Studies on wheat sterility. Analysis of the cellular structure of hybrids, to discover the reason for the degenerating of hybrid germ cells in sterile plants. Chromosome relationships in wheat species. (Highmoor Substation) Me.

Wheat experiments. Cytological basis for cross sterility. Me.

Effect of stage of maturity at harvest upon the germination power of wheat, oats, and barley seed. Wyo.

Effect of fall v. spring seeding of timothy upon yield of wheat. Ohio.

Wheat investigations. W.Va.

The effect of beards upon yield of wheat. N.Dak.

Continuous culture of wheat.--To determine the difference as observed in yields between continuous culture and crop rotation with special reference to the leading crops of Oklahoma and under Oklahoma conditions, wheat being the index crop. Okla.

Continuous cropping plats of oats, barley, and wheat. Two tons manure each year per acre. (West Central Branch Station, Morris) Minn.

Laboratory studies on the differences in wheat yields in the crop rotation experiments, after corn, soy beans, and tobacco. Ky.

Permanent wheat test.--To make a comparison of permanent wheat and its effect on weed control and soil fertility, with the effect of crop rotations. (Langdon Substation) N.Dak.

Wheat. (Cont.)

Seed wheat studies. Iowa.

Tillage investigations. Wheat seed bed preparation. Kans.

Methods of seed bed preparation for wheat and oats. Minn.

Seed treatment of wheat for control of disease. Ky.

Winter wheat.--To determine whether or not winter wheat is hardy enough for this territory. (Langdon Substation) N.Dak.

Wheat storage and shrinkage investigations, involving the physical conditions of grain storage. Kans.

Grain Cockage investigations. Examination and mechanical analyses of wheat and screenings. Minn.

Wheat marketing investigations. Studies of farm storage factors in the marketing of wheat. Kans.

A study of the composition of pure strains of wheat, oats, and barley grown at various points in the United States. Minn.

Studies on the effect of environment on wheat. Md.

Cereal investigations. (In cooperation with the Office of Cereal Investigations. U.S.D.A.) Oreg.

Wheat variety trials.--To obtain comparative yields and disease data for this territory. (Langdon Substation) N.Dak.

Yellow-berry in wheat. The cause of yellow-berry in Turkey Red wheat in the Columbia Basin. Oreg.

Miscellaneous.

New or uncommon crop investigations. Iowa.

Cooperative experiments with field crops, including oats, wheat, barley, Hubam clover, Ames Amber syrup sorghum, Sudan grass, soy beans, timothy, and seed certification. Iowa.

Cooperative crop experiments. Varietal and cultural tests with most of the important crops, obtaining data for particular conditions and localities. Ariz.

Growth control by means of intercropping. (Market Garden Substation, Lexington) Mass.

Miscellaneous. (Cont.)

Seeding in oats with clovers v. seeding with clovers, alfalfa, and orchard grass. R.I.

The correlation between differences in crop growth on differently fertilized soils in the field and under greenhouse conditions. Ky.

An investigation of the Schweizer electrical method of preservation of green forage. Calif.

HORTICULTURE.

Almonds.

Pecan, English walnut, and almond experiment: (a) To ascertain whether New Mexico climatic and soil conditions are suitable for the growing of these nut trees, (b) to study the different methods of preventing winter injury to the trees, and (c) an investigation on originating, if possible, a late blooming almond. N.Mex.

Apples.

Genetics and breeding.

Apple experiments. Study of heredity in apple crosses. Me.

Apple breeding. Study of heredity in the apple, the unit characters or groups of characters which follow Mendel's law, and the application of the principles of breeding in development of desirable winter varieties. Iowa.

Breeding work with apples. For the purpose of studying the laws of inheritance in apples and of producing new types of fruit. Studies on self-sterility experiments on the mutual influence of stock and scion. (Highmoor Substation) Me.

Apple breeding.---To produce, if possible, varieties that will mature in Alaska. Alaska.

Apple breeding. Md.

Apple breeding investigations. Idaho., Oreg.

Fruit breeding. Especially apples and strawberries. Nebr.

Apple breeding: (a) Bud selection, (b) growing apple seedlings from seeds of fruits from trees chosen as possessing special merit, and (c) crossing and hybridizing of apples. Ill.

Breeding apples for late blooming habit. Mo.

Apples. (Cont.)

Breeding late blooming varieties of apples. Va.

A study of Kenia in apples and of the factors which influence the fertility and sterility of apple varieties. Ark.

Variety tests.

Apples: Variety test. Ala.

Apple variety tests.--To sift them by testing and keeping the best. Alaska.

Apples: Variety tests. Miss.

Varietal studies of apples. Del.

Variety test of apples. Md.

Variety tests with apples. S.C.

Variety orchard of apples and miscellaneous tree fruits. Ky.

Apple orchard experiment with varieties. Pa.

Apples: Variety studies, including field observations and orchard tests to gain information relative to their behavior, commercial possibilities, and adaptation for the home orchard or garden. Va.

Test of a number of new varieties of apples and of the one- and two-year-old apple graft: (a) The testing of twenty new varieties of apples such as the Delicious, King David, Champion, Apple of Commerce, Stayman Winesap, etc., (b) to secure data on the longevity of these varieties upon very sandy soil, and (c) to ascertain whether the one-year-old or two-year-old apple graft is the better for planting under southern New Mexico conditions. N.Mex.

Variety tests of apples, crabs, plums, Compass cherries, and nut trees. Transplantings. (North Central Branch Station, Grand Rapids) Minn.

Apple experiments. Production of new varieties from seedlings. Me.

New apples for Wisconsin. Wis.

Varieties of apples best adapted to Wisconsin conditions. Wis.

Cultural experiments.

Cultural test of apples and crabs. (Northwest Experiment Farm, Crookston) Minn.

Cultural methods with apples. Pa.

Apples. (Cont.)

Apple orchard experiment. Cultural methods. Pa.

Comparison of cultivation and heavy mulching for apples and pears. Mass.

A comparison of cultural methods in the apple orchard. Pa.

Fertilizer tests.

Fertilizers for apples. N.Y. State.

Fertilizers for apples and peaches. W.Va.

Plant food studies with apples. N.J.

Apple orchard experiment with fertilizers. Pa.

Local orchard experiments. Response of apple trees to fertilizers under different soil conditions. Va.

Influence of fertilizers on yield and quality of apples. Pa.

Soil treatment in apple orchards. A study of the effects of certain fertilizers applied to trees under these treatments. Ill.

The influence of nitrogen, potash, and phosphoric acid in apple production. Del.

A comparison of the relation, value, and time of application of nitrate of soda and ammonium sulphate on peaches and apples. Md.

Fertilizer experiment (on Ben Davis apple orchard) to test the relative value of sulphate of ammonia, nitrate of soda, lime, phosphate, and potash in an apple orchard. Mich.

To study the effect of nitrogenous fertilizers under different conditions and the physiological changes resulting from these on the applications to vegetative growth and fruit production of apple trees in their unfruitful condition. Mich.

Humus and its relations to the physiological activities of the apple.--To study different methods of handling orchard soils as shown by the effect on yield of fruit and longevity of the trees. Iowa.

Influence of fertilizer applications upon the yield, growth, and other physiological functions of the apple grown in different soils. Pa.

Pruning.

Apples: Pruning tests. Miss.

Apples. (Cont.)

Experiments in pruning apples. Mass.

Pruning apples, pears, and small fruits. Nebr.

Physiological effect of pruning apple trees. W.Va.

Pruning the apple. Fall and spring pruning with a comparison of shoot growth and healing of wounds. Minn.

The effect of different styles of pruning on the percentage of apple blossoms that set fruit. N.Y. Cornell.

Kind and amount of pruning for apple trees in different conditions of vigor. Va.

Apple pruning.--To determine the comparative value of different systems and different amounts of pruning with apple trees. (Swannanoa Substation) N.C.

Apple pruning experiment, including pruning to vase-shape trees, to semi-leaders, to leaders, and summer pruned. N.H.

The effect of pruning on various horticultural crops, including grapes and apples. (Graham Substation) Mich.

Apple pruning experiments. A study of the effect of heading back and not heading back the annual growth in comparison with unpruned trees. N.J.

Test of pruning methods on the Northern Spy and other varieties. Mass.

Spraying and dusting.

Spraying of apple orchards. Iowa.

Field experiments in spraying apples. Ill.

Experimental apple spraying.--To determine the comparative value of Bordeaux mixture, commercial lime-sulphur, and sulphur dust in controlling apple scab and other diseases of the apple. Minn.

Dusting apple and peach trees for the control of insects and diseases. Md.

Effectiveness of dusting for the general treatment of apple orchards. N.Y. State.

Abscission of fruit and leaves of the apple as affected by spraying and dusting materials. Mich.

Fruit spur studies.

Apple variety fruit spur study. Mass.

Apples. (Cont.)

A study of fruit bud formation in the apple. Del.

Factors influencing the functioning of apple fruit spurs, with reference to biennial fruiting. Wis.

Effect of pruning and nitrogen fertilizer upon the off-year production of Wealthy apple trees. Wis.

Studies in the biennial bearing of apples. Md.

Causes and means of control of fruit bud formation on the apple. N.H.

Apple experiments. Bud variation and value of pedigreed nursery stock. Me.

Apple experiments. Set and development of fruit. Me.

Stock and scion studies.

Orchard stocks for apples. Iowa.

Stocks for commercial varieties of apples. (Horticultural Substation). Mont.

Root stocks for peaches and apples. N.J.

Hardy stock for apples. Colo.

Producing apple stocks by cuttings. Md.

Propagation of the apple, sweet cherry, and walnut by pretreatment of scion wood in place. Pa.

Interrelation of stock and scion in apples. Mass.

Apple experiments. Effect of stock on scion. Me.

A study of the affinity between the apple scion and the pear stock.--To ascertain if the pear root, which is immune to injury by the woolly aphis, is a suitable stock on which to bud or graft the apple. N.Mex.

The hardiness of scion and seedling roots of the apple. N.Y. Cornell.

Apple orchard experiment, selection and stocks. Pa.

Miscellaneous.

Pollination: To determine how and to what extent standard varieties of apples and plums are self-barren and also to determine which of the standard varieties may best be used as pollinizers for self-barren and partially self-barren varieties. (South Haven Substation) Mich.

Apples. (Cont.)

Apple experiments. Study of self- and cross-sterility in leading Maine varieties. Me.

Pollination of the apple. Studies of the causes leading to the reported self-sterility of some varieties and of the possible benefits derived from cross-pollination. W.Va.

Apple pollination. Md.

A study of controlled crosses in the plum and apple. A study of varieties of apples as to abundance of pollen production, the viability of the pollen and the vigor of growth of pollen tubes as possible limiting factors in fruit production. Minn.

Methods of propagating apples. N.Y. State.

Propagation of apples from selected buds. N.Y. State.

The effects of various stimuli on the fruiting habits of peaches and apples. Ill.

A study of the strains of the Baldwin apple. N.Y. State.

Summer apples.--To test the commercial production of early apples in eastern North Carolina. To determine the most profitable varieties of summer apples. (Coastal Plain Substation, Willard) N.C.

Test of cover crops for apple orchards. Mass.

Apple orchard experiment with cover crops. Pa.

Thinning apples. Mont.

Apple thinning.--To determine the value of apple thinning as to the size of the fruit and the value on fruit bud formation. (Swannanoa and Statesville Substations) N.C.

Time of picking fruit. (Spitzenberg apples and D'Anjou pears under study). (Hood River Substation) Oreg.

A study of the nature, causes, and prevention of winter injury to fruits, with special reference to the apple, including the root system. N.H.

Relation of orchard practices to winter injury of apple trees. N.Y. State.

The freezing point of various apple tissues. N.Y. Cornell.

Cold storage for Iowa - Apples. Iowa.

Apples. (Cont.)

Study of the factors which influence production, storing, and shipping of apples. Ark.

Apple orcharding trials; comparative varietal studies; and storage endurance. Long time studies of a 40-variety apple orchard as to growth, yields, winter injuries, storage endurance, etc. Vt.

Measurable characteristics of maturing and ripening apples. Wash.

Working out the anatomy and histology of the apple (Pyrus malus) with the idea of bringing together a complete account of this one plant which can be used as a reference in considering the structure of this and allied species. N.Y. Cornell.

The relation between cambium activity and the reserve food supply in apple trees. N.Y. Cornell.

Investigations of the chemical composition of apples in relation to apple breeding. Iowa.

The introduction and testing of apples, pears, and plums to determine their winter hardiness and adaptability to high altitudes. (High Altitude Substation) Idaho.

Factors that influence the size and water supply of apples, and their relation to the occurrence of stippen. N.Y. Cornell.

Age of apple trees for planting. N.Y. State.

Disease resistance in apple trees. Study of relative resistance and determination of factors operating to cause or modify resistance to diseases of the wood or bark. Ark.

Apple orchard survey. (Hood River Substation) Oreg.

One and two year old tree test.--To determine which is the best for planting in Oklahoma, one or two year old apple trees. Okla.

Apple experiments. Relation of yield, type, and growth, (in Ben Davis orchard of 1200 trees). Me.

Rate of growth of fruits: Apples, pears, and peaches. N.J.

Growth and differentiation in apple trees. (Highmoor Substation) Me.

Apples. (Cont.)

Miscellaneous plantings, pruning, and soil treatment experiments with apples, pears, peaches, and cherries. Ill.

Apples: Experiments, and demonstration orchard at Lincoln Institute. Ky.

Profits from an apple orchard. N.Y. State.

Commercial value of dwarf apple trees. Va.

Asparagus.

Improvement of Martha Washington asparagus. (Market Garden Substation, Lexington) Mass.

Value of asparagus seed selection for disease resistance. Pa.

Plant food requirements of asparagus. Md.

Plant food studies with asparagus. N.J.

A study of the comparative value of coarse salt v. nitrate of soda in the commercial production of asparagus and the effect of the time of application. Pa.

Beans.

A study of the manner of inheritance of the various economic characters in beans. Ariz.

Selection within pure lines of oats and beans. N.Y. Cornell.

Bean breeding for interior dry-land conditions in California. (Riverside Substation) Calif.

The breeding of varieties of beans resistant to the various diseases of the bean. N.Y. Cornell.

Breeding field and garden beans for disease resistance. N.Y. Cornell.

Breeding anthracnose-resistant navy beans. Ohio.

Improvement of beans grown for canning. Wis.

Variety test of beans. (North Central Branch Station, Grand Rapids) Minn.

Beans. (Cont.)

Garden and field bean and pea investigations. Variety tests. (Aberdeen Substation) Idaho.

Variety test of beans.--To determine the varieties best adapted for planting in the State with special reference to their resistance to blight. Okla.

Variety test of beans.--To determine the adaptability of imported bean varieties to local conditions. P.R.

Culture of Lime beans. An attempt to determine methods of increasing yields. Ill.

A study of the factors involved in the production and shipping of beans. Ark.

Cause and prevention of sclerema and hardshell in beans. N.Y. State.

Field and garden pea and bean investigations. Seed bean investigations. (Aberdeen Substation) Idaho.

Beets.

Cultivation experiment on beets. N.Y. Cornell.

Studies of the germination of beet seed. N.J.

Blackberries.

Plant breeding, using blackberries, dewberries, and raspberries (genus Rubus). Tex.

Variety test of bush fruit, including currants, gooseberries, raspberries, and blackberries. Md.

Variety tests of raspberries, blackberries, dewberries, gooseberries, currants, high bush cranberries, blueberries, strawberries, and grapes. (North Central Branch Station, Grand Rapids) Minn.

Small fruit experiment: (a) To collect phenological data on a number of different varieties of strawberries, blackberries, raspberries, currants, and loganberries; (b) to ascertain, if possible, the best varieties of these different fruits for commercial and home plantations. N.Mex.

Blackberry culture. (Fruit and Truck Station, Hammond) La.

Fertilization and culture experiments with raspberry and blackberry. N.H.

Blueberries.

Blueberry culture. Minn.

Culture test of blueberries.--To learn the best methods of growing. Alaska.

Blueberry culture: (a) As a possible new industry for Massachusetts; (b) as a possible substitute for cranberries on some hogs. (Cranberry Substation, Wareham) Mass.

Blueberries for large and abundant fruit. R.I.

Variety tests of raspberries, blackberries, dewberries, gooseberries, currants, high bush cranberries, blueberries, strawberries, and grapes. (North Central Branch Station, Grand Rapids) Minn.

Broccoli.

Broccoli investigations. Comparative trials of thirteen strains of broccoli as to earliness, yield, quality, and hardiness. Oreg.

Cabbage.

A study of the heredity of certain head characters in Volga cabbage. Del.

Breeding cabbage. N.Y. Cornell.

Breeding yellows-resistant cabbage. Ohio.

Development of a yellows-resistant early cabbage.--To develop yellows-resistant strains of early variety of cabbage, viz: Copenhagen, Jersey Wakefield, and Charleston Wakefield. Ind.

Cabbage variety tests. (Swannanoa Substation) N.C.

The relative value of varieties of late cabbage for different purposes. Pa.

Cabbage: Relative value of the most extensively grown varieties of cabbage. Pa.

A study of the commercial strains of Bonny Best and Chalks Jewel tomatoes, and Copenhagen market cabbage, to locate superior strains of all desirable qualities. N.Y. Cornell.

Planting date of cabbage. (Swannanoa Substation) N.C.

A study of the fertilizer requirements of cabbage and tomatoes. Pa.

A study of the fertilizer requirements of cabbage, tomatoes, and potatoes on DeKalb soils. Pa.

Cabbage. (Cont.)

Cultivation experiments on cabbage. N.Y. Cornell.

Early cabbage: The relation of seed selection to earliness, yield, and uniformity of type. Pa.

Late cabbage. The relation of seed selection to size and solidity of heads, yield, and uniformity of type. Pa.

Comparison of seed strains of late cabbage. Oreg.

Localities for and methods for production of cabbage seed. Md.

A study of the causes of fall planted cabbage going to seed before heading in the spring. Md.

A study of the root development of cabbage seedlings as influenced by culture and environment previous to the final transplanting. Pa.

Annual growing of late cabbages on same land, with heavy liming to repel club root. R.I.

Experiments in storing cabbage. Mont.

Cantaloupes.

Cantaloupe studies. N.J.

Stable manure v. chemical fertilizers for cantaloupes. Md.

A study of factors involved in the production and shipping of cantaloupes. Ark.

Carrots.

Cultivation experiments on carrots. N.Y. Cornell.

Seed production. Production studies with carrot and parsnip seed growing. (Aberdeen Substation) Idaho.

Celery.

Celery investigations. Ky.

Cultivation experiments on celery. N.Y. Cornell.

Celery. (Cont.)

Fertilizer experiments with celery on muck soil. (Wayne County). N.Y. Cornell.

Experiments with celery: The influence of size of seed. Pa.

Studies of the germination of celery seed. N.J.

Premature seeding of celery. Mont.

A study of the causes of premature development of seed stalks of celery.
N.Y. Cornell.

Cherries.

Cherry variety tests.--To select the hardier ones. Alaska.

Varietal studies of cherries. Del.

Variety test of sweet and sour cherries and of European, native, and Japanese plums: (a) To test a number of the newer varieties of these different fruits, (b) to ascertain why the sweet cherries are not successful in New Mexico. N.Mex.

Peach, plum, and cherry variety tests. Md.

Variety tests of apples, crabs, plums, Compass cherries, and nut trees. Transplantings. (North Central Branch Station, Grand Rapids) Minn.

Cherry stock investigations to determine the comparative value of Mazzard and Mahaleb stock for sour cherries. Mich.

To study the interrelations of stock and scion in cherry graftage. Wt.

Propagation of the apple, sweet cherry, and walnut by pretreatment of scion wood in place. Pa.

Cherry pollination. Oreg.

A study of cherry pollination. Idaho.

Study of factors affecting set of cherries in Sturgeon Bay district. Study of fruiting of cherry with reference to effects of pruning and fertilization. Wis.

Miscellaneous plantings, pruning, and soil-treatment experiments with apples, pears, peaches, and cherries. Ill.

Chicory.

The forcing of Witloof chicory to determine the effect of different methods of storing roots for forcing, and of different temperatures during the forcing process. Ill.

Citrus. (See also Rural economics - Cost of production.)

The breeding and improvement of citrus fruit. (Riverside Substation) Calif.

Observation and testing of various citrus hybrids. (In cooperation with the Bureau of Plant Industry, U.S.D.A.) Fla.

A study of the varieties of citrus fruits and their relatives. (Riverside Substation) Calif.

Citrus culture. The adaptability of different species to this section, with particular reference to hardiness. (Fruit and Truck Station, Hammond) La.

A study of the fertilizer requirements of citrus fruits. (Riverside Substation) Calif.

Cooperative field trials of fertilizers and green manure crops with citrus trees. Calif.

Effect of different fertilizers on Satsuma oranges. Ala.

Determination of the effect of various phosphoric acid carriers on the growth and production of citrus trees. Fla.

Determination of the effect of varying amounts of potash on the composition of oranges. Fla.

The selection in the improvement of citrus stock. (Riverside Substation) Calif.

The effect of different stocks on commercial species and varieties of citrus. (Riverside Substation) Calif.

To determine the influence of soil, environment, and general treatment on stock and variety measured by the size and health of the tree and the quantity and quality of citrus fruits. P.P.

Citrus fruits. A study of cultural practices including varietal tests, bud selection studies, methods of pruning, propagation, soil improvement by use of cover crops, time and method of planting, effect of stable manure and commercial fertilizers; and a study of effect of temperature and atmospheric humidity. Ariz.

Citrus. (Cont.)

A physiological study of the effect of pruning upon the growth and productiveness of citrus trees and other horticultural plants grown under irrigation in arid regions in southern California. (Riverside Substation) Calif.

Citrus survey. Calif.

Survey of situation of the citrus products and by-product industries in southern California. Calif.

Planning, planting, and early care of a citrus orchard for future experimental work. (Riverside Substation) Calif.

Coffee.

Coffee variety tests.--To find coffee of good flavor which may be more prolific or more resistant to insect attacks, disease, or adverse conditions of soil or climate than is the coffee grown here at present. P.R.

Coffee fertilizers.--To determine what fertilizers can be applied with profit to coffee plantations in Porto Rico. P.R.

To determine if sulphate of ammonia will be effective in increasing coffee yields where nitrate of soda has failed to do so. P.R.

Coffee.--To assist in the development of the coffee industry of the island, Guam.

Collards.

Breeding a better type of collard. Ga.

Crab apples.

Variety tests of apples, crabs, plums, Compass cherries, and nut trees. Transplantings. (North Central Branch Station, Grand Rapids) Minn.

Cranberries.

Variety tests of raspberries, blackberries, dewberries, gooseberries, currants, high bush cranberries, blueberries, strawberries, and grapes. (North Central Branch Station, Grand Rapids) Minn.

Culture tests of cranberries.--To learn how best to grow them. Alaska.

Cranberries. (Cont.)

Study of the cultivation of the high bush cranberry (Viburnum opulus). Mass.

Investigation of cranberry problems.--To determine the underlying principles of cranberry production. N.J.

Cucumbers.

Establishing standard grades of cucumbers. In view of assisting the growers in marketing their cucumbers more profitably. (New Hanover Substation) N.C.

Currants.

Currant breeding.--To secure new varieties suited to the Alaska climate. Alaska

Propagation and selection of small wild fruits.--To find desirable plants of red raspberries and red currants. (Rampart Substation) Alaska.

Currant variety tests.--To find varieties best suited to Alaska. Alaska.

Currants: Variety studies, including field observations and orchard tests to gain information relative to their behavior, commercial possibilities, and adaptation for the home orchard or garden. Va.

Variety test of bush fruits, including currants, gooseberries, raspberries, and blackberries. Md.

Variety tests of raspberries, blackberries, dewberries, gooseberries, currants, high bush cranberries, blueberries, strawberries, and grapes. (North Central Branch Station, Grand Rapids) Minn.

Small fruit experiment: (a) To collect phenological data on a number of different varieties of strawberries, blackberries, raspberries, currants and loganberries, (b) to ascertain, if possible, the best varieties of these different fruits for commercial and home plantations. N.Mex.

Study of currants as to hardiness and fruitfulness. Wis.

Classification of varieties of currants. Ohio.

Dasheens.

To learn best varieties and cultural methods for yautias, dasheens, and sweet potatoes for Porto Rico. P. R.

Dates.

Culture and management of date orchards, with special reference to the improvement of the yield and quality of fruit and the rooting of offshoots. Ariz.

Studies of behavior of dates in the Imperial Valley. Rooting of date offshoots (Miloland Substation) Calif.

Dewberries.

Plant breeding, using blackberries, dewberries, and raspberries (genus Rubus). Tex.

Variety tests of raspberries, blackberries, dewberries, gooseberries, currants, high bush cranberries, blueberries, strawberries, and grapes. (North Central Branch Station, Grand Rapids) Minn.

Raspberry and dewberry fertilization.--To determine the effect of nitrogen, phosphorus, and potash, when used singly and in combination, upon the yield and growth of the berries. Mich.

Cultural practices with dewberries.--To study cultural practices in connection with dewberries and best method of growing and handling this crop in the Coastal Plain. (Coastal Plain Substation, Willard) N.C.

Dewberry spraying investigations. Mich.

Eggplants.

To combine the adaptability of the native eggplant with the improved size and quality of the mainland varieties. P.R.

Figs.

Fig variety test. Miss.

Filberts.

Filbert pollination and breeding investigations, including crosses and self-pollination of five varieties for self-fertility and self-sterility studies. Oreg.

Floriculture.

Flowering plant investigations. (Northwest Experiment Station, Crookston) Minn.

Floriculture. (Cont.)

Selection and trial of annual flowers adapted to Indiana.--To develop strains of those that are adapted. Ind.

Variety tests of annual flowers.--To find annual flowers of easy culture best suited for farmstead ornamentation. La.

Flower trials.--To determine the best varieties of perennial and annual flowers and how they can best be grown. N.Dak.

Carnation breeding experiments.--To improve and extend the list of commercial varieties and to study the inheritance of color. N.J.

Carnation culture. N.J.

Relation of date of propagation and benching to productiveness of carnation plants. Pa.

Greenhouse projects: (b) A study of some of the causes of the bursting of the carnation calyx with special reference to its inherited character. Md.

Study of selection of carnations and rose plants in relation to yearly production of flowers.--To determine whether production may be increased by selecting cuttings from high producing plants. Ill.

A dahlia trial garden.--To determine characteristics and qualities of dahlia seedlings and named varieties for the purpose of preventing duplication of names and to classify dahlias according to type. Calif.

Trial gardens of the American Dahlia Society. Md.

Variation in the common daisy. N.Y. Cornell.

The study of the species hybrids in the genus Digitalis. Pa.

Variety tests of gladioli. N.Y. Cornell.

Environmental factors in hydrangea culture. N.J.

Variety tests of pogon irises. N.Y. Cornell.

Study of the germination of the orchid seed. The conditions and factors which influence seed germination and the influence of the fungus which seems essential in the germination process. Ill.

Hydrogen-ion concentration and other factors influencing germination and growth of orchid seeds. N.Y. Cornell.

Floriculture. (Cont.)

Studies with peonies. N.Y. Cornell.

Variety tests of perennial phlox. N.Y. Cornell.

Hardy primulas; species, types, and varieties of. N.Y. Cornell.

Breeding hardy roses. N.Y. Cornell.

Rose breeding (Rosa rugosa).--To produce new varieties. Alaska.

Improvement of roses and the ornamentals, etc. S.Dak.

Rose culture. N.J.

Rose studies: (a) A study of the hardiness and adaptability of different varieties and types of roses, (b) a study of stocks for roses, (c) a study of the development of an American type of rose, (d) methods of winter protection and cultural methods. N.Y. Cornell.

Rose stock experiments. N.Y. State.

Some pruning experiments on greenhouse roses. Md.

Sweet pea bud drop investigations.--To determine: (a) The effect of fertilizers and moisture on sweet pea bud drop, (b) the effect of light; (c) the effect of humidity. Ind.

Greenhouse projects: (a) How to get seed of the ten-weeks stock (Malthiola icana annua) to produce a large percentage of double flowers. Md.

Asexual inheritance in the violet. N.Y. State.

Testing the effect of artificial light on flowering plants in the greenhouse. Md.

Study on the effects of using the same soil in greenhouse benches more than one year in relation to flower production. Ill.

Fruit-bud studies.

Causes and means of control of fruit-bud formation on the apple. N.H.

Fruit-bud development of fruit trees as influenced by treatment and previous crops: (a) To determine and record the behavior of individual fruit producing spurs and branches through a series of years; (b) to determine factors favoring or opposing fruit-bud formation on these parts as influenced by previous bearing, thinning fruit, pruning, tillage, girding, fertilizers, etc. Mo.

Fruit-bud studies. (Cont.)

Fruit-bud formation and development. A study of the time of fruit-bud formation and the rate of development of the same under various environments existing in the various deciduous orchards of the State, also factors bringing about fruit-bud formation. Calif.

Effect of cultural operations and fertilizers in modifying the development of fruit buds and their resistance to extreme cold. Okla.

Effect of soil environment on fruit-bud formation. Va.

Pruning as a factor in bud formation and differentiation.--To determine the fundamental causes of fruit-bud formation and differentiation as influenced by the time and manner of pruning. Oreg.

Relation of light to fruit-bud formation. N.H.

Fruits, general. (See also Rural Economics - Cost of production.)

Inheritance of characters in tree, vine, and bush fruits. N.Y. State.

Fruit and vegetable breeding, selection, and testing. Ark.

Breeding experiments with all tree, bush, and vine fruits that will grow in this climate. N.Y. State.

Improvement of hardy wild fruits of the Northwest by breeding and crossing. S.Dak.

Breeding for hardiness in fruits. Minn.

Breeding hardy fruits.--To develop by seedlings and crosses between wild and tame species, varieties better adapted to North Dakota than those now existing. N.Dak.

Pollination studies. A study of the pollination requirements of the various deciduous fruits. Calif.

Fruit breeding and variety testing. (South Haven Substation) Mich.

Minor work with fruits. Varieties and breeding. (Talent Substation) Oreg.

Variety studies. (Fruits). Iowa.

Fruit variety test. Ala., Ohio.

Variety trials of fruit. Oreg.

Variety tests of fruits. Minn., N.H.

Fruits, general. (Cont.)

Variety tests of fruits, small fruits, and grapes. Ill.

Study of varieties of tree fruits. Mass.

Variety tests of fruit trees. (In cooperation with the Office of Western Irrigation Agriculture, U.S.D.A.) (Hermiston Substation) Oreg.

Variety test of fruit trees. W.Va.

Variety tests of commercial fruits. (Horticultural Substation) Mont.

Variety work in pomology. N.C.

Variety test of orchard fruit.--To find varieties best suited to the State, particularly apples, peaches and plums. Okla.

Variety testing of tree fruits, small fruits, and vegetables. Idaho.

Variety tests of all tree, bush, and vine fruits that will grow in this climate. N.Y. State.

Variety orchard of apples and miscellaneous tree fruits. Ky.

Variety and hardiness test of tree fruits. (Northwest Experiment Farm, Crookston) Minn.

Records as to condition, vegetative, and fruiting characteristics, and hardiness for all varieties, under trial, of apples, plums, cherries, etc. Oreg.

Variety tests of fruits.--To determine the hardiest and best fruits for North Dakota conditions. N.Dak.

Hardy tree fruits for high altitudes. Colo.

Maintaining an orchard for the testing of fruit trees, obtained through the Office of Foreign Seed and Plant Introduction, U.S.D.A. Tex.

Experiments with fruit trees, bush, and other fruits.--To introduce fruit trees and other fruits, and to determine their hardiness and adaptability to our conditions. (Edgeley Substation) N.Dak.

A study involving collection and improvement of ornamentals bearing edible fruits in an effort to combine beauty and productiveness in planting. Ill.

Fruit trees and fruit bushes.--To test adaptability to Matanuska Valley. (Matanuska Substation) Alaska.

Fruits, general. (Cont.)

Nursery plantings of trees and shrubs (fruits and ornamental). Ky.

Cooperative orchard experiment. Variety and management test. (Northeast Demonstration Farm, Duluth) Minn.

Tree fruits. Studies of varieties and management. Mont.

Fertilizer tests for fruits and vegetables. Miss.

Fertilizers for fruit trees in Southern Oregon, including experiments with pears, peaches, and apples on different soils. (Talent Substation) Oreg.

A study of the effects of fertilizer limitation on fruit plants. Mass.

Fertilizer effect on fruit setting. Minn.

Liming of fruit trees to note the effect upon growth and fruiting. (North Central Branch Station, Grand Rapids) Minn.

Cultural tests of fruits.--To determine the best way of handling the soil; the best pruning methods and the best methods of winter protection for the various fruits in North Dakota. N.Dak.

Toxicity in relation to fruit tree culture. Ohio.

Fruit tree injury from abnormal food supply. Deficiency or surplus of certain plant foods. Mont.

Moisture requirements of deciduous fruit orchards. (Mountain View Substation) Calif.

Study of the water requirement of fruits as affected by pruning and special cultural methods. Ariz.

Improvement of fruit stocks. Pa.

Growing nursery stock.--To produce Alaska grown trees for test in various parts of the territory. Alaska.

Spraying v. dusting tests. Fruit trees and potatoes. Oreg.

Sterility in fruits.--To determine the underlying factors influencing the setting of fruit. Minn.

Tree characters of fruit varieties. Mass.

Phenological fruit investigations.--To secure data on the blooming and ripening periods of the different orchard fruits. N.Mex.

Fruits, general. (Cont.)

Wild fruit plants of North Carolina. N.C.

Native fruits of North Carolina. N.C.

A study of the chemical composition of fruits during development under varying conditions of treatment. Del.

Factors that influence the abscission of flowers of young fruits. N.Y. Cornell.

Time of picking fruit. (Spitzenberg apples and D'Anjon pears under study).
(Hood River Substation) Oreg.

Fruit treatment trials. (Northwest Experiment Station, Crookston) Minn.

Fruit storage. Wash.

Dynamiting holes for fruit trees v. digging holes with spade.--To study effect on growth and fruiting. (North Central Branch Station, Grand Rapids) Minn.

The raising of fruits. (Raymond Substation) Miss.

Fruits, tropical and subtropical. (See also Citrus, Coffee, Figs.)

Breeding investigations with tropical horticultural plants.--To determine methods of breeding best adapted to each species under consideration and to develop new and desirable forms. Hawaii.

To determine the relative merits of various varieties of different species of tropical fruits and also to determine the best cultural treatment for species in question. Hawaii.

Tropical fruit investigations.--To secure a greater variety of desirable fruits for growing in Guam. Guam.

The cold storage of certain semi-tropical fruits. Calif.

Experiments with bananas and plantains.--To conduct variety, fertilizer, and other cultural experiments with bananas and plantains to determine the best varieties and methods of fertilizing and culture. Guam.

Development of a strain of the Chamaluco banana resistant to the Panama disease. P.R.

Cacao.--To assist in the development of the cacao industry of the island. Guam.

Fruits, tropical and subtropical. (Cont.)

Cacao variation in yield.--To determine extent of variation in yield of individual cacao trees and factors affecting same. P. R.

Coconut experiments.--To determine yields and quality of two leading strains or types of coconuts grown in Guam on different soil types, yields and value of different types, effect of fertilizers and careful cultivation on two leading strains or types of coconuts grown in Guam. Guam.

Coconut fertilization.--To learn fertilizer requirements of coconuts on Porto Rico beach land. P. R.

Study of jujube plants. Ariz.

To acquire, test, and disseminate better varieties of mangoes than those grown locally. P.R.

Improvement and study of inheritance in papaya growing. P.R.

Gooseberries.

Gooseberry breeding. The production of hardy varieties suited to the country. Alaska.

Gooseberry variety tests.--To find the varieties best suited to Alaska. Alaska.

Gooseberries: Variety studies, including field observations and orchard tests to gain information relative to their behavior, commercial possibilities, and adaptation for the home orchard or garden. Va.

Variety tests of raspberries, blackberries, dewberries, gooseberries, currants, high bush cranberries, blueberries, strawberries, and grapes. (North Central Branch Station, Grand Rapids) Minn.

Variety tests of bush fruit, including gooseberries, raspberries, blackberries, and currants. Md.

Gooseberry experiments with reference to mildew-resisting powers. Wis.

Grapes.

Inheritance of characters in tree, vine, and bush fruits. N.Y. State.

Inheritance of color in Rotundifolia grapes.--To determine the laws governing inheritance of color in Vitis rotundifolia. N.C.

Grapes. (Cont.)

Inheritance of productivity of Rotundifolia grapes.--To establish standards or productivity for the most important varieties, to study the factors bearing upon productivity in order to determine methods to pursue in increasing productivity in Vitis rotundifolia and to watch for unusually productive vines. N.C.

Studies in the inheritance of sex in Rotundifolia grapes.--To establish the laws of transmission of sex applying to Vitis rotundifolia and to determine methods to be used in hybridization. N.C.

Inheritance of size of fruits in Rotundifolia grapes.--To determine the factors governing the size of berries in Vitis rotundifolia and method of transmission of the characters. N.C.

Hybridization of Rotundifolia grapes with other species.--To determine the various species with which Vitis rotundifolia will hybridize: To find method of overcoming antipathy where it occurs, and to establish a scale of hybridization of Vitis rotundifolia with other species. N.C.

Grape breeding. Md.

Breeding experiments with all tree, bush, and vine fruits that will grow in this climate. N.Y. State.

Breeding Vitis rotundifolia. Ga.

Variety tests of grapes. Miss., S.C.

Variety tests of fruits, small fruits, and grapes. Ill.

Variety tests of raspberries, blackberries, dewberries, gooseberries, currants, high bush cranberries, blueberries, strawberries, and grapes. (North Central Branch Station, Grand Rapids) Minn.

Grape investigations: American and hybrid varieties. Ky.

Grape investigations: Vinifera varieties. Ky.

Variety tests of all tree, bush, and vine fruits that will grow in this climate N.Y. State.

Varieties of grapes best suited for the State. Okla.

Grapes: Variety studies, including field observations and orchard tests to gain information relative to their behavior, commercial possibilities, and adaptation for the home orchard or garden. Va.

Grape experiments, including fertilizer experiments, variety tests, and pruning. W.Va.

Grapes. (Cont.)

Grapes: Fertilizer tests. Miss.

Fertilizers for grapes. N.Y. State.

Grape fertilization.--To determine the proper fertilizer applications for grapes in southwestern Michigan. Mich.

Orchard and vineyard fertilization studies. Ky.

Investigation of vineyard soils. Iowa.

Soil treatment experiments with small fruits and grapes at Urbana. Ill.

Grape pruning. Mich.

Pruning experiments with grapes. N.Y. State.

Pruning investigations for a comparison of different systems of vine pruning. Iowa.

Grapes. Effects of different methods of pruning and of different irrigation and cultural practices. Ariz.

Pruning experiments with small fruits and grapes. Ill.

Pruning grapes, apples, and small fruits. Nebr.

Methods of pruning bunch grapes. S.C.

The effect of the time of pruning upon the nutrition and fruiting of the vine. Calif.

A physiological study of grape pruning. Md.

The effect of pruning on various horticultural crops including grapes and apples. (Graham Substation) Mich.

Influence on the vigor of the vine of the removal of growth in the dormant season. (Davis Substation) Calif.

Grape dusting investigations. Mich.

A study of quality characters of Rotundifolia grapes.--To study the factors controlling the various qualities of Vitis rotundifolia such as clinging character of the berries, thickness of skin, transpiration, flavor, aroma, and disease resistance, with a view to finding methods of improvement. N.C.

Grapes. (Cont.)

A study of grapes, Vitis vinifera, compared to native or V. champinii varieties. Tex.

The effect of various preliminary treatments and the time of planting of vine cuttings on the number and vigor of rootings. Calif.

The effect of: (a) Density, and (b) arrangement of planting upon the vigor and bearing of the vine. Calif.

Irrigation of vineyards. (Davis Substation) Calif.

The packing and shipping of table grapes with special reference to the work of the grower and of the packer. Calif.

Types of flowers in grapes. N.Y. State.

Pigments of the grape. N.Y. State.

Grape varieties on hardy stocks. N.Y. State.

The influence of the rest period and chemical reagents on the root formation of Vitis rotundifolia cuttings. Ga.

A study of factors involved in the production, storing, and shipping of grapes. Ark.

Survey of the vineyard industry in the vicinity of Council Bluffs. Iowa.

Grape culture. N.H.

Muscadine grape culture. (Fruit and Truck Experiment Station, Hammond) La.

Juneberries.

Juneberry tests.--To see if any can grow. Alaska.

Landscape gardening.

Landscape architecture: Its relation and application to the rural schools of New York State. N.Y. Cornell.

New plant materials for landscape use in Iowa.--To collect reliable data on plant materials regarding their landscape value under Iowa conditions. To test on the station grounds new and little known plant materials. Iowa.

A study for the purpose of establishing a foliage key to landscape plants. N.Y. Cornell.

Landscape gardening. (Cont.)

A study of the ferns of New York State in their relation to landscape art.
N.Y. Cornell.

Lettuce.

Head lettuce investigations. Ky.

A study of varieties and cultural methods for head lettuce. Idaho.

Fertilizer tests with lettuce. S.C.

Fertilizer experiments with lettuce on muck soil. (Wayne Co.). N.Y. Cornell.

A study of the effects of certain fertilizer treatments on lettuce and tomatoes under glass. Pa.

Use of fertilizers in forcing lettuce. Wis.

The germination of lettuce seed. Minn.

Soil treatment for greenhouse lettuce and tomatoes. Ill.

The rôle of soil texture in head lettuce culture under glass. Pa.

Litchis.

Litchi investigations.--To secure data on the best methods of cultivation and marketing of the litchi. Hawaii.

Loganberries.

Small fruit experiment: (a) To collect phenological data on a number of different varieties of strawberries, blackberries, raspberries, currants, and loganberries, (b) to ascertain, if possible, the best varieties of these different fruits for commercial and home plantations. N.Mex.

Mulberries.

Study of species of mulberries. Ariz.

Muskmelons.

Muskmelons. N.Y. State.

Nuts, general.

Variety tests of apples, crabs, plums, Compass cherries, and nut trees.
Transplantings. (North Central Branch Station, Grand Rapids) Minn.

Nut tree plantations. Mich.

Nut culture in Minnesota; including selected varieties of black walnuts, shell bark hickory and the "heart nut" (Juglans siebaldiana Var. Cordiformis). Minn.

Olives.

Pruning olives with a view to favoring annual bearing and better fruit.
Calif.

Heavy v. light pruning and summer v. dormant pruning of bearing olive trees.
(Davis Substation) Calif.

Olives. A study of sterility, cultural practices, such as pruning, irrigation, etc. Ariz.

The effect upon the quality of olives of methods of sterilization. Calif.

The preparation of collections of olive trees at Davis, Kearney, and Imperial, and of specimens at Berkeley. Calif.

Onions.

Louisiana creole onion improvement. La.

Cultivation experiments on onions. N.Y. Cornell.

Methods of growing onions. Mont.

Fertilizer experiments with onions on muck soil. (Wayne Co.). N.Y. Cornell.

Chemical changes in the onion under various storage conditions. Md.

A physiological study of onion dormancy. Md.

Factors influencing the vegetation and production of bunch onions grown from sets. Md.

Time of formation of flower primordia in the onion. Md.

Orchard management, fertilization, culture, miscellaneous.

The home orchard. A selection of fruit trees and vines most suitable to Louisiana conditions. (North Louisiana Experiment Station, Calhoun) La.

Orchard management, etc. (Cont.)

Orchard experiments, variety studies, and cultural treatments. (Appomattox Substation) Va.

Orchard cultural tests. (Horticultural Substation) Mont.

Local orchard experiments. Methods of culture. Va.

Cultural tests of fruits.--To determine the best way of handling the soil; the best pruning methods; and the best methods of winter protection for the various fruits in North Dakota. N.Dak.

Cultural experiments with orchard fruits.--To determine the effect of various cultural and fertilizer treatments on young orchards. (Graham Substation) Mich.

Local orchard experiments. A study of cover crops. Va.

To determine the effect of growing crops in orchards. Wash.

Comparison of clover sod and grass in sod mulch orchard. Mass.

Comparison of cultivation and sod mulch in a bearing orchard. Mass.

Investigations as to the relative value of alfalfa sod, grass sod, and cultivation with cover crop for an orchard mulch. (Graham Substation) Mich.

The effect of grass on the nitrogen supply of fruit trees, and the response of the trees to variations in the nitrogen supply. N.Y. Cornell.

Shade crop studies. The influence of tree growth of different methods of handling alfalfa in orchards. (Hood River Substation) Oreg.

The effect of possible secretions from grass roots on fruit trees. N.Y. Cornell.

Effects of different depths of planting upon growth of trees. Oreg.

Orchard fertilization. Mass.

Tests of orchard fertilizers. Idaho.

Orchard fertilizer investigations. Iowa.

Orchard and vineyard fertilization studies. Ky.

Orchard nutrition, with special reference to the relations between plant food, environment, nutritive conditions within the plant and production. Mo.

Value of commercial fertilizers in orchards. (Horticultural Substation) Mont.

Orchard management, etc. (Cont.)

Tests of different amounts of nitrate of soda (in orchards). Mass.

Nitrate of soda as an orchard fertilizer. Trials in pear, apple, and prune orchards. Oreg.

Test of fertilizers in a sod mulch orchard. Mass.

Tests of fertilizers for apples, pears, strawberries, potatoes, and clover on different soils of Hood River Valley. (Hood River Substation) Oreg.

Orchard humus investigations. Iowa.

Orchard humus studies. Iowa.

Orchard soil management investigations.--To study the effects and particularly the factors responsible for the effects of different systems of soil management on apple trees. Ind.

Orchard management investigations. Studies of tree growth and fruit-bud formation as affected by commercial fertilizers, green manures, cover crops, and methods of tillage. Kans.

Orchard soil management investigations. Studies of the root systems of the apple tree under different methods of soil management.--To study the depth, amount, and character of tree roots under different systems of soil management. Ind.

Orchard soil management investigations. A study of the temperatures of the soil under different systems of management as affecting the apple tree.--To find the temperatures existing under the various soil treatments and their effects on the apple tree and its environment. Ind.

Orchard heating investigations. Iowa.

Smudging experiment.--To test a few of the different kinds of smudge pots, and to ascertain whether or not smudging is practicable. N.Mex.

Moisture requirements of deciduous orchards. (Mountain View Substation) Calif.

Orchard renovation. N.E.

Renovation of prune orchards. Wash.

Cooperative orchard experiments. Minn.

Ornamentals, hedge plants.

Tests of trees and ornamentals. (Horticultural Substation) Mont.

Tests of fall and winter ornamental flowers that may be easily cultivated for home ornamentation on the farm. La.

Tests of ornamental trees and shrubs. Mont.

Trees and shrubs for ornamental planting. Ariz.

Testing of introduced shrubs and ornamentals and methods of their propagation. Fla.

Variety trials of shrubs.--To determine the best shrubs for North Dakota and how they can best be used. N.Dak.

Variety and hardiness tests of ornamental shrubs and vines. (Northwest Experiment Farm, Crookston). Minn.

Variety tests of ornamental trees. (In cooperation with the Office of Western Irrigation Agriculture, U.S.D.A.) (Hermiston Substation) Oreg.

Variety trials of shade trees.--To learn which trees are most hardy in North Dakota and by studying them to learn where they can best be used. N.Dak.

Variety tests of windbreak trees. (In cooperation with the Office of Western Irrigation Agriculture, U.S.D.A.) (Hermiston Substation) Oreg.

Ornamental perennials, tests.--To study their behavior. Alaska.

Hardy and half-hardy herbaceous perennials. Ky.

Ornamental annuals in variety.--To beautify station and test them. Alaska.

Study of ornamental varieties and their uses; including a peony trial garden, an iris trial plot, and dahlia tests. Minn.

To determine the adaptability of various ornamental trees to higher elevations of eastern Idaho for the improvement of the homestead. (Aberdeen Substation) Idaho.

Tests of trees and ornamental shrubs for the high plains of southwestern Kansas. (Tribune Substation) Kans.

Ornamental shrubbery tests.--To study their behavior. Alaska.

Horticultural investigations. The planting of ornamental trees and shrubs for the homestead. (High Altitude Substation) Idaho.

Ornamentals, hedge plants. (Cont.)

Study of trees with respect to environment.--To determine the adaptability of various ornamental trees to this area for the improvement of the homestead... (Aberdeen Substation) Idaho.

Growth and hardiness tests of ornamental and windbread trees. (Northwest Experiment Farm, Crookston) Minn.

Forestry investigations.--To try out forest and ornamental trees to determine their value for shelter belts, post timber, and other uses. (Edgeley Substation) N.Dak.

Nursery plantings of trees and shrubs (fruits and ornamental). Ky.

Study of tamarisks, particularly Tamarix articulata. Ariz.

Parsnips.

Seed production. Production studies with carrot and parsnip seed growing. (Aberdeen Substation) Idaho.

A study of the chemical and physiological changes in the parsnip as affected by different storage conditions. Md.

Peaches.

The genetic composition of peaches. A genetic analysis of certain varieties to determine degree and manner of transmission of heritable characters. Mass.

Peach breeding. Del.

Peach breeding for hardy sorts. Mo.

Crossbreeding peaches. A study to improve the peach by breeding. (Riverside and Davis Substations) Calif.

Peach breeding experiments.--To improve the present list of commercial varieties and to study the inheritance of unit characters in the peach. N.J.

Peach breeding work.--To produce new varieties; an earlier variety than the Mayflower; an earlier yellow fleshed variety than Arp Beauty; earlier freestone varieties of both white and yellow fleshed peaches; varieties hardier in bud. (Coastal Plain Substation, Willard) N.C.

Peaches. Variety tests. Ala., Miss.

Peaches. (Cont.)

Varietal studies of peaches. Del.

Variety tests with peaches. Ga.

Peach, plum, and cherry variety tests. Md.

Peaches: Variety studies including field observations and orchard tests to gain information relative to their behavior, commercial possibilities, and adaptation for the home orchard or garden. Va.

Phenological studies and variety test with peaches.--To determine the best varieties for North Carolina and the blooming and ripening dates of different varieties. (Coastal Plain Substation, Willard; Statesville; and Swannanoa Substations) N.C.

A study of the hardiness of peach varieties in western North Carolina. (Swannanoa Substation) N.C.

Fertilizer tests with peaches. Ga.

Fertilizers for peaches and apples. W.Va.

Plant food studies with peaches. N.J.

Influence of fertilizers on peach production. Pa.

Fertilizer test on young and bearing peach trees. S.C.

Local orchard experiments. Response of peach trees to fertilizers under different soil conditions. Va.

Use of fertilizers on the peach orchard. N.H.

A comparison of the relation, value, and time of application of nitrate of soda and ammonium sulphate on peaches and apples. Md.

Functions of nitrogen, potash, and phosphoric acid in the production of the peach. Del.

Relative effect of various carriers of nitrogen upon peach production. Del.

Nitrate of soda test on bearing peach trees. S.C.

Peach fertilization.--To determine the effect of applications of nitrate of soda on peaches at different growth stages on fruit production. (Graham Substation) Mich.

Pruning and nitrogen tests in rejuvenating a peach orchard. Md.

Peaches. (Cont.)

Pruning peach trees. N.Y. Cornell.

Pruning experiments with peaches. Miss.

Peach pruning experiments. A study of the various methods of pruning peach trees to determine the effect of various modifications of pruning upon the amount, form, and character of the wood growth, the effect of pruning during the dormant season, the effect of pruning upon fruit production, and the relation between various methods of pruning and the essential details of orchard management. N.J.

Summer pruning peach trees.--To determine value of summer pruning with "dehorned" trees and the value of summer pruning with young peach trees. (Coastal Plain, Statesville, and Swannanoa Substations) N.C.

"Dehorning" peach trees.--To determine the value of "dehorning" in renewing and invigorating peach trees. (Statesville and Swannanoa Substations) N.C.

A study of the behavior of fruit buds and twigs on the hardiness of the peach. Md.

The effects of various stimuli on the fruiting habits of peaches and apples. Ill.

The longevity and adaptability of the Indian Cling peach. A comparison of the longevity of the modern commercial varieties of peach when budded on to the Indian Cling Stock v. the same variety on stock from the mixed seed obtained on the market.--To test the Indian Cling seedlings as to heredity or stability of character, and as direct fruit producers. Tex.

Study with peaches on change of permeability and its relation to availability. Del.

Dusting and spraying peaches. Mich.

Dusting peach and apple trees for the control of insects and diseases. Md.

Root stocks for peaches and apples. N.J.

Rate of growth of fruits: Apples, pears, and peaches. N.J.

Soil treatments in peach orchards.--To determine the relative importance of clean cultivation, fertilizer treatments, cover crops, etc. on production. Ill.

Studies of two methods of planting peach trees. N.J.

A study of the cause of June drop in peaches in Delaware. Del.

Peaches. (Cont.)

A study of peach yellows in Connecticut in connection with fertilizer tests. Conn. State.

Establishing standard grades of peaches.--To establish standard grades of peaches in view of assisting the growers in marketing their peaches more profitably. (Aberdeen Substation) N.C.

Miscellaneous plantings, pruning, and soil-treatment experiments with apples, pears, peaches, and cherries. Ill.

Pears.

Pear breeding. Md., (Talent Substation) Oreg.

Pear breeding investigations. D'Anjou pear pollination. Oreg.

Pollination of pears (Comice and D'Anjou). (Talent Substation) Oreg.

Variety pollination experiment with pears: (a) A variety test of 78 varieties, (b) to study the relative resistance of these varieties to the pear blight, (c) to study the degree of self sterility or self fertility. N.Mex.

Varietal studies of pears. Del.

Testing new varieties of pears. (Talent Substation) Oreg.

Pears: Variety tests with special reference to susceptibility to blight. Ala.

Test of fertilizers for pears. Mass.

Comparison of cultivation and heavy mulching for apples and pears. Mass.

Test orchard of pear stocks. (Talent Substation) Oreg.

A study of the graft union from the standpoint of the alleged difficulty of top-working the Kieffer pear to other varieties of pear. N.Y. Cornell.

A study of the affinity between the apple scion and the pear stock.--To ascertain if the pear root, which is immune to injury by the woolly aphis is a suitable stock on which to bud or graft the apple. N.Mex.

Pear spraying investigations to determine a safe spray application for D'Anjou pears. (Hood River Substation) Oreg.

Pear harvesting and storage investigations. Development of a physical indicator of maturity of the fruit. Oreg.

A study of the comparative keeping qualities of different varieties of pears in cold storage. Calif.

Pears. (Cont.)

Pear harvesting and storage investigations. Storage tests with Bosc pears.
(Talent Substation) Oreg.

Horticultural investigations. The introduction and testing of apples, pears, and plums to determine their winter hardiness and adaptability to high altitudes. (High Altitude Substation) Idaho.

Miscellaneous plantings, pruning, and soil-treatment experiments with apples, pears, peaches, and cherries. Ill.

Factors influencing the bearing habit of the D'Anjou pear, including girdling, bridge grafting, spur pruning, artificial beading of branches, heading v. thinning out, etc. (Hood River Substation) Oreg.

Time of picking fruit. (Spitzenberg apples and D'Anjou pears under study).
(Hood River Substation) Oreg.

Study of physical and morphological changes of Bartlett pears. Oreg.

Rate of growth of fruits: Apples, pears, and peaches. N.J.

Peas.

Breeding of field and canning peas: (a) Field and canning peas, (b) peas for northern Wisconsin. Wis.

Garden and field pea investigations. Breeding and improvement. Idaho.

Garden and field pea and bean investigations. Variety tests. (Aberdeen Substation) Idaho.

Garden and field pea investigations. Variety tests with standard varieties. (Standpoint Substation) Idaho.

Garden and field pea investigations.--To determine the varieties best adapted to irrigated and dry lands. (High Altitude Substation) Idaho.

Garden and field pea investigations. Cultural experiments. Idaho.

A study of the influence of temperature on the growth of peas. Md.

Garden and field pea investigations. Classification studies. Idaho.

Peas. N.Y. State.

Pecans.

Pecans breeding.--To produce improved varieties and varieties especially suited to North Carolina. (Coastal Plain Substation, Willard) N.C.

Pecans: Variety tests. Ala.

Pecans: Variety studies. Miss.

Pecans: Comparison of nuts grown here and in other sections of the State. Miss.

Variety testing of pecans.--To determine the most desirable varieties for North Carolina. (Coastal Plain, Kingsboro, Statesville, and Swannanoa Substation) N. C.

A study of the commercial value of pecans in North Carolina. (Coastal Plain, Kingsboro, Statesville, and Swannanoa Substations) N.C.

Pecan investigation.--To test the better varieties of pecans to see if some cannot be found which will prove hardy in this part of Oklahoma. Okla.

Sterility and variety tests with pecans. Ga.

Pecan culture in California. A study of the adaptability of present commercial varieties to the soil and climatic conditions of California, and of the possible further development of the pecan industry in the State. (Davis Substation Calif.

Pecan culture. Growing of standard commercial varieties to obtain data on bearing age of trees, yield, and growth. (Fruit and Truck Experiment Station, Hammond) La.

Cultural practices with pecans.--To determine the most desirable cultural practices in handling pecan orchards. (Coastal Plain and Kingsboro Substation) N.C.

Pecan, English walnut, and almond experiment: (a) To ascertain whether New Mexico climatic and soil conditions are suitable for the growing of these nut trees, (b) to study the different methods of preventing winter injury to the trees, and (c) an investigation on originating, if possible, a late blooming almond. N.Mex.

Walnut and pecan studies. A study of environmental factors with especial attention to top grafting Juglans major with cultivated varieties. Ariz.

Individual tree performance records of pecans. (Coastal Plain and Kingsboro Substations) N.C.

A study of the proteins of the pecan.--To find the per cents of proteins extracted by the solvents commonly used. Okla.

Pecans. (Cont.)

Cracking tests with pecans.--To determine the value of different varieties as regards cracking quality. N.C.

A study of pecans in Arkansas. Ark.

Peppers.

Culture of peppers. A study of the relation of certain cultural methods to earliness and yield. Ill.

Fertilizer and cultural tests with peppers. Ga.

Types of hot beds best suited to growing pepper plants. Ga.

Persimmons.

Persimmon variety test. Miss.

Pistachios.

Study of pistach trees. (Pistacia vera). Ariz.

Plums.

Improvement of plums by selection and by hybridization. Wis.

Pollination.--To determine how and to what extent standard varieties of apples and plums are self barren and also to determine which of the standard varieties may best be used as pollinizers for self-barren and partially self-barren varieties. (South Haven Substation) Mich.

Plum variety tests.--To see if any will mature fruit. Alaska.

Varietal studies of plums. Del.

Variety test of European, native, and Japanese plums and sweet and sour cherries. To test a number of the newer varieties of these different fruits. N.Mex.

Peach, plum, and cherry variety tests. Md.

Variety tests of apples, crabs, plums, Compass cherries, and nut trees. Transplantings. (North Central Branch Station, Grand Rapids) Minn.

Varieties and seedlings of plums best adapted to Wisconsin conditions. Wis.

Plums. (Cont.)

Horticultural investigations. The introduction and testing of apples, pears, and plums to determine their winter hardiness and adaptability to high altitudes. (High Altitude Substation) Idaho.

A test of stocks for plums. N.Y. State.

Prunes.

Prune breeding investigations. Testing seedlings. Oreg.

Prune type of Prunus species. A study of the origin of the "Marshall Prune", of the prune character, including internal and external character of the fruit and the transmission of the prune character. N.C.

Renovation of prune orchards. Wash.

Rejuvenation of old fruit trees, with especial reference to prunes. (Mountain View Substation) Calif.

Pruning. (See also specific fruits.)

Pruning studies. A study of wood growth and total fruit crop of the various deciduous fruit trees grown in California, when subjected to different pruning treatments. Calif.

Pruning experiments. N.Y. State., (Hood River Substation) Oreg.

Pruning tests with various fruits. Propagation of orchards in place. (South Mississippi Substation) Miss.

Testing methods of pruning. Mass.

Pruning studies. The effect of different methods of pruning upon deciduous fruit. Ariz.

Comparison of the effects of long and short pruning on varieties which are commonly pruned both ways. Calif.

Pruning experiment.--To study the effect of different times and styles of pruning. N.Mex.

Experiments on the comparative effect of different methods of pruning on different fruit varieties and soils. Calif.

To study the effects of pruning upon the tree and some of the causes contributing thereto. Ind.

Pruning. (Cont.)

A physiological study of the effect of pruning upon the growth and productivity of citrus trees and other horticultural plants grown under irrigation in arid regions in Southern California. (Riverside Substation) Calif.

Some physiological responses of the apple tree to pruning.--To gain an accurate index of tree activity through physiological studies with a view of interpreting the results of pruning practices. Ind.

Physiological effect of pruning fruit trees, including peaches, pears, plums, cherries, and quinces. W.Va.

The effect of pruning and of fruiting, especially production, on the amount of dry matter produced by a given leaf area, with apples, cherries, gooseberries, and grapes. N.Y. Cornell.

The effect of the pruning necessary to secure various forms on the leaf surface growth, and fruiting habit of apples, pears, plums, quinces, and cherries. N.Y. Cornell.

Cordon pruning. Calif.

Pruning as a factor in bud formation and differentiation.--To determine the fundamental causes of fruit-bud formation and differentiation as influenced by the time and manner of pruning. Oreg.

Summer v. winter pruning experiments. Idaho.

Healing of pruning wounds. Mont.

Raspberries.

Genetic studies with bramble fruits, especially raspberries. Determination of factors limiting culture of Rubus species in the South Atlantic States. Hybridization among species. N.C.

Raspberry breeding. Ill.

Plant breeding, using blackberries, dewberries, and raspberries (genus Rubus). Tex.

Raspberry breeding.--To produce new and better varieties. Alaska.

Propagation and selection of small wild fruits.--To find desirable plants of red raspberries and red currants. (Rampart Substation) Alaska.

Raspberry variety tests.--To test them out to find the best sorts. Alaska.

Raspberries. (Cont.)

Variety test of bush fruits, including currants, gooseberries, raspberries, and blackberries. Md.

Raspberries: Variety studies, including field observations and orchard tests, to gain information relative to their behavior, commercial possibilities and adaptation for the home orchard or garden. Va.

Variety tests of raspberries, blackberries, dewberries, gooseberries, currants, high bush cranberries, blueberries, strawberries, and grapes. (North Central Branch Station, Grand Rapids) Minn.

Small fruit experiment: (a) To collect phenological data on a number of varieties of strawberries, blackberries, raspberries, currants, and loganberries, (b) to ascertain, if possible, the best varieties of these different fruits for commercial and home plantations. N.Mex.

Comparison of Cuthbert raspberries from the Thumb district of Michigan. (South Haven Substation) Mich.

Raspberries cultural spraying experiments. Mich.

Fertilization and culture experiments with the raspberry and blackberry. N.H.

Raspberry fertilization. (South Haven Substation) Mich.

Raspberry and dewberry fertilization.--To determine the effect of nitrogen, phosphorus, and potash, when used singly and in combination, upon the yield and growth of the berries. Mich.

Rhubarb.

The development of an improved variety of rhubarb. Pa.

Growing rhubarb for the home garden.--To determine whether rhubarb can be satisfactorily grown for home use in Louisiana. La.

Rhubarb for forcing. Wis.

Value of chemical fertilizers on rhubarb. Md.

Small fruits, general.

Genetic studies with bramble fruits, especially raspberries. Determination of factors limiting culture of Rubus species in the South Atlantic States. N.C.

Inheritance of characters in tree, vine, and bush fruits. N.Y. State.

Small fruits, general. (Cont.)

Breeding experiments with all tree, bush, and vine fruits that will grow in this climate. N.Y. State.

Propagation and selection of small wild fruits.--To find desirable plants of raspberries and red currants. (Rampart Substation) Alaska.

Varietal studies of small fruits. Del.

Small fruit variety testing. (South Haven Substation) Mich.

Variety tests of fruits, small fruits, and grapes. Ill.

Variety testing of tree fruits, small fruits, and vegetables. Idaho.

Variety test of bush fruits, including currants, gooseberries, raspberries, and blackberries. Md.

Variety testing of small fruits from fruit breeding station. (Northeast Demonstration Farm, Duluth) Minn.

Variety tests of all tree, bush, and vine fruits that will grow in this climate. N.Y. State.

Bush fruits.--To test some of the most popular varieties of bush fruits and strawberries. Okla.

Small fruit tests.--To learn what small fruits can be grown and how best to grow them. Alaska.

Variety and hardiness tests of small fruits. (Northwest Experiment Farm, Crookston) Minn.

Small fruits and garden crop investigations. Variety tests and source-of-seed tests. Kans.

Vegetable and small fruit studies for the Delta. (Delta Substation) Miss.

Varietal classification of small fruits. Ill.

Experiments with fruit trees, bush, and other fruits.--To introduce fruit trees and other fruits, and to determine their hardiness and adaptability to our conditions. (Edgeley Substation) N.Dak.

Bush fruit experiments. Fertilizer and variety tests. W.Va.

Variety and cultural tests with small fruits. (Horticultural Substation) Mont.

Soil treatment experiments with small fruits and grapes. Ill.

A study of the relation of winter injury to brambles to differential fertilization with potash salts. Mass.

Small fruits, general. (Cont.)

- Pruning experiments with small fruits and grapes. Ill.
Pruning small fruits, pears, and apples. Nebr.
Mulching bush fruits. Ohio.
Irrigation of small fruits and vegetables. Mich.
A study of production, and handling of cane fruits. Ark.
Experiments with small fruits. Mont.
Small fruits survey. W.Va.

Spinach.

- A study of spinach as a market garden crop for Southern Arizona. Ariz.

Squash.

- Pure line breeding with squash and strawberries. Study of influence of continued self-pollination on quality, quantity, seed production, vigor, and vitality of progeny; maintenance of pure lines without inter-crossing. Vt.

Spraying, dusting, and fumigating, general. (See also Chemistry - chemical studies, various; Horticulture - specific fruits; Plant pathology - fungicides and specific plants; and Entomology - Insecticides.)

- A comparison of various dusts and sprays on apples, peaches, cherries, potatoes, and onions. Conn. State.
Spraying fruits for insect and fungus diseases.--To determine the benefit to be derived from the addition of a substance to increase the spreading qualities of lime sulphur. Mo.
Testing of the value of various sprays and spraying methods. Idaho.
Improvement of method of spraying vegetables. N.Y. State.
Scab spraying investigations. Studies of spraying practices as a basis for spraying program. (Hood River Substation) Oreg.
Scab spraying investigations. Determining strength of dilutions necessary to effect control. (Hood River Substation) Oreg.
Scab spraying investigations. Testing of proprietary sprays. (Hood River Substation) Oreg.

Spraying, dusting and fumigating, general. (Cont.)

Spraying, with special reference to meeting the local requirements to control insect and fungus diseases. Va.

Bordeaux soap and copper soap sprays for truck crop diseases. Ohio.

Comparative tests in the use of present day spraying equipment. (Hood River Substation) Oreg.

How to prepare from leaf tobacco or waste a dependable infusion for spraying. Ky.

Some phases of dusting for control of fruit diseases and insects. N.Y. Cornell.

New and cheaper dusting materials. Mich.

Dusting forest areas by aeroplane. Ohio.

Spreaders for spray materials. Mich.

Investigation of stickers, spreaders, and diluents for spraying and dusting, particularly the latter.--To find satisfactory dust materials that will take the place of liquid mixtures; to find a spreader for commercial lime-sulphur and a sticker for self-boiled lime-sulphur. N.J.

Adherence of sprays and dusts to foliage. N.Y. State.

A study of the physical properties of insecticides and fungicides. Oreg.

Chemical investigation of spray materials. Oreg.

Physical and chemical properties of fine dusts used as carriers or diluents. N.Y. State.

Duration of protective effect of dusts and sprays. N.Y. State.

Reactions of dusts or sprays in storage. N.Y. State.

Factors influencing burning of foliage by Paris Green. Mont.

Physiological effects of arsenical compounds on vegetation. Mont.

Study of plant stimulation by formaldehyde. Mass.

Stock and scion investigations. (See also specific fruits.)

Stock and scion investigations.--To study the interrelation of stock and scion in both its commercial and scientific aspects. Ind.

Stock and scion investigations. (Cont.)

A study of the affinity between the apply scion and pear stock.--To ascertain if the pear root, which is immune to injury by the woolly aphis, is a suitable stock on which to bud or graft the apple. N.Mex.

Scion trials. A study of the relationship of the parentage of scions to subsequent fruitage; of the question whether scions from high bearing, low bearing, and constant bearing trees will perpetuate these characteristics or whether they will be modified by the characteristics of the tree into which they are grafted. Vt.

Root stock investigation. (Mountain View Substation) Calif.

Strawberries.

Strawberry breeding. Ky.

Strawberry breeding.--To secure varieties that shall be suited to the Alaska climate; particularly in point of hardiness. Alaska.

Pure line breeding with squash and strawberries. Study of influence of continued self-pollination on quality, quantity, seed production, vigor, and vitality of progeny; maintenance of pure lines without inter-crossing. Vt.

Fruit breeding, especially apples and strawberries. Nebr.

Strawberry runner selection. A study in improvement in yield by stolon selection on the basis of parental yields. Vt.

Strawberry breeding investigations. Varietal trials with new varieties. Oreg.

Strawberry variety tests. Wis.

Strawberry variety tests.--To test and select the best varieties. Alaska.

Testing new variety strawberries. Md.

Variety tests of strawberries. (Fruit and Truck Station, Hammond) La., Miss.

Variety testing of strawberries.--To determine if there are any varieties of strawberries more desirable as commercial varieties than Klondike and Missionary, the two leading sorts. (Coastal Plain Substation, Willard) N.C.

Bush fruits.--To test some of the most popular varieties of bush fruits and strawberries. Okla.

Variety tests. Tests with strawberries and potatoes. (Hood River Substation) Oreg.

Strawberries. (Cont.)

Variety test of raspberries, blackberries, dewberries, gooseberries, currants, high bush cranberries, blueberries, strawberries, and grapes. (North Central Branch Station, Grand Rapids) Minn.

Testing strawberry seedlings. Oreg.

Comparison of Klondike and Missionary varieties of strawberries for commercial purposes. (Coastal Plain Substation, Willard) N.C.

Strawberry variety trials and cultural experiments. Ky.

Strawberry experiments, including variety test, bud variation, and strawberry culture. Fertilizer experiments. W.Va.

Cultural practices with strawberries.--To determine the most satisfactory planting date and the value of removing blossoms and cutting runners in growing strawberries under the hill system. (Coastal Plain Substation, Willard) N.C.

Strawberry nutrition. Mo.

Fertilizer tests with strawberries. (Fruit and Truck Station, Hammond) La.

Tests of fertilizers for strawberries. Md.

Strawberry fertilization. Ohio.

The use of nitrate of soda as a fertilizer for strawberries. N.H.

Sterility of strawberries. - Cause and remedies. Vt.

Small fruit experiment: (a) To collect phenological data on a number of different varieties of strawberries, blackberries, raspberries, currants, and loganberries, (b) to ascertain, if possible, the best varieties of these different fruits for commercial and home plantations. N.Mex.

A study of production and handling of strawberries. Ark.

Investigations of the method of marketing Kentucky strawberries. Ky.

Sweet corn.

Metabolism studies with sweet corn. Md.

Utilization of hybrid vigor in sweet corn.--To cross distinct strains in order to get hybrid grain for seed purposes. (Highmoor Substation) Me.

Sweet corn. (Cont.)

Sweet corn breeding. Ky.

Sweet corn breeding experiments. N.H.

Corn experiments. Breeding and selection for better sweet corn for canning.
Me.

Sugar corn seed production and breeding. Md.

An experiment on the possible improvement of seed sweet corn in the matter of freedom from various diseases by selection, germination tests, and examination of the germinating seed for presence of disease. Conn. State.

Sweet corn seed improvement.--To study seed improvement of seed corn and to compare home-grown seed with imported from the East and North.--To discover the influence of the source of seed upon the percentage of sugar in sweet corn, selfing to establish practical or complete homozygous strains. Ind.

Improvement of yield, quality, and uniformity of sweet corn. Wis.

Improvement of Dent, Flint, and sweet corn in yield and feeding value, by breeding work in three different localities. Conn. State.

Production of a strain of sweet corn for Porto Rico. P.R.

Work with sweet corn. Variety tests and selection to secure new and improved strains. (Highmoor Substation) Me.

Corn experiments. Variety test - sweet and ensilage corn. Me.

Sweet corn for the home garden. La.

Fertilizer experiments with sweet corn for canning. Iowa.

A study of the effects of removal of suckers of sweet corn on earliness, size of ears, total yield, and other conditions. N.Y. Cornell.

Sweet corn investigations, including methods of curing and handling; a comparison of results from the use of diseased and disease-free seed of strong v. weak seed and of the canning quality of corn grown from eastern seed as compared with native seed. Iowa.

A study of the factors affecting the yield and quality of sweet corn for canning.
Ill.

Tomatoes.

A study of inheritance in the tomato. Pa.

Tomatoes. (Cont.)

Tomato breeding. N.J., Wis.

Improvement of the tomato for canning purposes. Md.

To develop a more satisfactory strain of tomato for a canning crop tomato.
Studies of plant growing and fertilizer requirements; also seed production.
Ind.

Breeding disease-resistant tomatoes. Del.

Breeding disease-resistant tomatoes with special reference to the western blight
or summer blight. Calif.

Improvement of tomato varieties, with particular reference to the disease called
western blight or summer blight. Calif.

The development of wilt-resistant tomatoes. Ga.

Development of a wilt-resistant greenhouse tomato. Ind.

Production of wilt-resistant tomatoes.--To aid in establishing general cultivation
of wilt-resistant tomatoes. La.

Propagation of wilt-resistant strains of tomatoes. (In cooperation with the
Bureau of Plant Industry, U.S.D.A.) Ark.

Tomato selection experiments. The value of selection on yield and earliness.
K.H.

Seed selection tomatoes.--Effect of using home grown seed as contrasted with
purchased seed. Mont.

Pollination of greenhouse tomatoes. N.Y. Cornell.

Relative value of pollination methods of greenhouse tomato varieties. Oreg.

Tomato experiments.--To try the different methods of producing early tomatoes;
to test a number of representative varieties of the early and late ripening
kinds; and to try different cultural methods. N.Mex.

Tomato variety tests. Colo., Fla.

Variety and strain test of tomatoes. (Market Garden Field Station, Lexington)
Mass.

Tomatoes: The relative merits of varieties for different purposes. Pa.

Variety test with different vegetables and tomatoes for commercial growing in
Mississippi. Miss.

Tomatoes. (Cont.)

Tomato investigations. Contrast in value of varieties - Grand Rapids Forcing and Bonny Best. Oreg.

A study of the commercial strains of Bonny Best and Chalks Jewel tomatoes and Copenhagen market cabbage, to locate superior strains of all desirable qualities. N.Y. Cornell.

Tomatoes: Variety culture and fertilizer tests. (Holly Springs and Raymond Substations) Miss.

Cultivation experiments on tomatoes. N.Y. Cornell.

Tomato experiment, including plant growing methods and fertilizer requirements. (Chataqua Co.). N.Y. Cornell.

Fertilizer experiments with tomatoes. Iowa.

Plant food studies with tomatoes. A study of the effect of different fertilizer elements and mixtures of these elements. A comparison of home and commercial fertilizers and rate and methods of application of fertilizers. N.J.

Fertilizers for tomatoes for the production of an early crop. Md.

A study of the fertilizer requirement of tomatoes and cabbage. Pa.

A study of the fertilizer requirements of cabbage, tomatoes, and potatoes on DeKalb soils. Pa.

A study of the effects of certain fertilizer treatments on tomatoes and lettuce under glass. Pa.

A study of the effect of phosphorus upon the time of maturity, quality, yield, and chemical composition of the tomato fruit. N.H.

Nutrition of the tomato. Studies intended to throw light upon conditions within the plant, correlated with certain external treatments and the response of the plants to those treatments. At present confined to nitrogen nutrition. N.Y. Cornell.

Soil treatment for greenhouse lettuce and tomatoes. Ill.

A study of the effects of pruning and staking tomatoes on yield, earliness, quality, and cost of growing; also a study of the causes of the effects produced. N.Y. Cornell.

Factors affecting setting of fruit on the tomato. Okla.

Tomatoes. (cont.)

A study of factors involved in the production and marketing of tomatoes. Ark.

Cost of tomato production. N.J.

Tomato products investigation. An investigation of the accuracy of the results secured in the microscopical examination of manufactured tomato products. N.Y. State.

Tung-oil nut trees.

Propagation and planting tests with the tung-oil nut tree. Fla.

Vegetables and truck crops, general.

Breeding and selection of vegetables, including variety trials with the squash, pea, melon, bean, onion, tomato, sweet corn, pepper, celery, beet, head lettuce, and cabbage. Minn.

Vegetable and fruit breeding; selection and testing. Ark.

Breeding vegetables for North Dakota.--To develop new varieties and improve old ones, especially for North Dakota conditions. N.Dak.

Vegetable plant improvement. Ohio.

Vegetable variety tests. Ala.

Vegetable gardening.-- variety testing. (Northeast Demonstration Farm, Duluth) Minn.

Garden crop investigations. Variety tests. (Northwest Experiment Station, Crookston) Minn.

Variety tests of vegetables.--To see what can be grown. Alaska.

Variety tests of vegetables.--To find the varieties best suited to that State. Okla.

Variety testing of tree fruits, small fruits, and vegetables. Idaho.

Variety test with string beans, melons, and onions, melon breeding, onion seed production, and source of potato tubers for planting. (Davis County Substation, Farmington) Utah.

Variety testing of novelties, or apparently worthy kinds of the most important vegetables. Md.

Vegetables and truck crops, general. (Cont.)

Variety tests of garden crops with complete fertilizers, both with and without manure. (North Central Branch Station, Grand Rapids) Minn.

Variety tests for successful plantings of late summer and fall vegetables. La.

Variety tests of garden crops, both on upland and Muskeg soils. (North Central Branch Station, Grand Rapids) Minn.

Variety test with different vegetables and tomatoes for commercial growing in Mississippi. Miss.

Variety tests of vegetables.--To determine hardiest and best varieties for North Dakota conditions. N.Dak.

To obtain varieties of vegetables adapted to Porto Rican conditions, and of good quality and yield. P.R.

Small fruits and garden crop investigations. Variety tests and source-of-seed tests. Kans.

Variety cultural tests of vegetables. (Judith Basin and Horticultural Substation) Mont.

Variety and cultural tests of vegetables under dry land conditions. (Huntley Substation) Mont.

A study of Maryland vegetables as to varieties, cultural methods, and marketing. Md.

Cultural tests with vegetables.--To determine the best planting dates, distance, and methods for growing common vegetables in North Dakota. N.Dak.

Vegetable gardening -- fertilization. (Northeast Demonstration Farm, Duluth) Minn.

Garden fertilization. (Northeast Demonstration Farm, Duluth) Minn.

Fertilizer tests for fruits and vegetables. (South Mississippi Substation) Miss.

Fertilizers for truck crops. Ohio.

A study of upland soil. Complete fertilizer tests on truck crops. (North Central Branch Station, Grand Rapids) Minn.

Fertilizer treatment of truck crops in a three-year rotation on a typical trucking soil in southern Illinois. Ill.

Vegetables and truck crops, general. (Cont.)

Fertilizer treatments of truck crops in a three-year rotation on brown silt loam in soil of the corn belt. Ill.

Test source of potash in complete chemical fertilizers for vegetable growing. Md.

Vegetable growers' rotations. Crops variable: Ten cords manure v. fertilizer alone. R.I.

Value of rye when turned down as a fertilizer for truck crops. Md.

Greenhouse rotation: Lettuce, lettuce, cucumbers. Includes sterilization and use of peat. R.I.

Greenhouse rotation: Radishes and spinach (2 or more times), tomatoes, manure compost, sand and fertilizer with more and less nitrogen, phosphorus and potassium to determine nutrient requirements. R.I.

Vegetable growers' rotations: Beets-cauliflowers; spinach-carrots; eggplant, also with cauliflower replaced by rye, grass, and clover for green manure and eggplant followed by rye for green manure; with 31, 16, 8 and 0 tons manure, and fertilizer in each case; more and less nitrogen, phosphorus, and potassium; peat; sub-soiling, and graveling; horse manure with straw v. sawdust or shavings bedding. R.I.

Vegetable growers' rotations: Beets, followed by clover, by cowhorn turnips, and by soy beans (all three plowed under in fall), and by clover, rye, and by timothy (plowed under in spring); and lettuce followed by the same green manure scheme: Fertilizer only. R.I.

Vegetable growers' rotations: Cabbage-beets, tomatoes-spinach, lettuce-celery, also with beets replaced by rye and vetch, rye and wheat for green manures; and with spinach and lettuce similarly replaced by rape (autumn), oats (spring), sweet clover and mammoth clover; with 32 tons of stable manure alone, 16 tons of manure and fertilizer having more and less of nitrogen, phosphorus, and potassium, and with no manure, with peat to supply organic matter equal to that in 16 tons manure. R.I.

Vegetable growers' rotations: Sudan grass, buckwheat, pearl millet, cowpeas, barley, kale, corn, and sunflower millet, planted about July 15 to ascertain which will produce the largest average amount of dry matter for possible humus material after that date. R.I.

Variable cash crops followed by sweet clover, alfalfa, mammoth clover, and by vetch, to determine their hardiness and value as green manures and nitrogen fixers. R.I.

Vegetables and truck crops, general. (Cont.)

Vegetable seed growing.--To produce Alaska grown seed for use of the station and to ascertain if commercial seed growing will be possible. Alaska.

A study of seed production of garden crops. Ga.

Comparison of southern and northern grown vegetable seed. (South Mississippi Substation) Miss.

Transplanting studies with vegetables. N.Y. Cornell.

Transplanting investigations with vegetables. Laboratory investigations on the hardening processes. Mo.

Irrigation of truck crops. Iowa.

Irrigation of small fruits and vegetables. Mich.

Seed saving for adaptation and disease resistance. Md.

Disease-resistant vegetables. Ohio.

Cold storage of garden seed.--To determine the effect of cold storage in checking the germination and vitality of garden seed. La.

Vegetable growing. Virgin Islands.

The raising of vegetables. (Raymond Substation) Miss.

Canning crops. Utah.

Observation garden. Development of all-year garden in Coastal Plain. (Coastal Plain Substation, Willard) N.C.

Vegetable and small fruit studies for the Delta. (Delta Substation) Miss.

Miscellaneous vegetable trials. Ky.

Truck crop survey. Iowa.

The home vegetable garden. A model backyard garden and a model farm garden. Mo.

Garden vegetable demonstrations. Guam.

Walnuts.

Genetic studies with Juglans regia, including methods of propagation. A study of eastern varieties and discoverable hybrids. N.C.

Walnuts. (Cont.)

Walnut breeding investigations. (Riverside Substation) Calif.

Walnut pollination and breeding investigations. Oreg.

The improving of trees, especially the black walnut.--To develop more desirable and hardy strains of trees which are only half hardy. N.Dak.

Walnut mutants and hybrids. A study of a new form of California black walnuts. Calif.

Propagation of the apple, walnut, and sweet cherry by pretreatment of scion wood in place. Pa.

Pecan, English walnut, and almond experiment: (a) To ascertain whether New Mexico climatic and soil conditions are suitable for the growing of these nut trees, (b) to study the different methods of preventing winter injury to the trees, and (c) to begin an investigation on originating, if possible, a late blooming almond. N.Mex.

Walnut and pecan studies. A study of environmental factors with especial attention to top grafting Juglans major with cultivated varieties. Ariz.

Field trials of fertilizers and green manure crops with walnuts. Calif.

Walnut irrigation, harvesting, and curing trial in its relation to mouldy walnut kernels. (Riverside Substation) Calif.

Watermelons.

A study of the factors involved in the production and shipping of watermelons. Ark.

Winter injury. (See also specific fruits.)

A study of the nature, causes, and prevention of winter injury to fruits, with special reference to the apple, including the root system. N.H.

Winter injury investigations.--To determine relative importance of factors in winter injury to roots of fruit trees and cane fruits. MoBr.

Winter injury.--To determine the best procedure in handling trees injured by the severe winter of 1919-20. (Food River Substation) Oreg.

Winter desiccation of fruit trees. A study of the physiological and pathological conditions resulting in the early spring death of fruit trees from so-called winter injury. Wash.

Winter injury. (Cont.)

A study of air drainage and spring temperature variations as affecting frost injury to fruit. N.Mex.

The recovery of fruit trees from serious winter injury. N.Y. Cornell.

Frost injury observations. Oreg.

Investigation of hardiness of roots. Wis.

Yautias.

To learn best varieties and cultural methods for yautias, dasheens, and sweet potatoes for Porto Rico. P.R.

Miscellaneous.

Breeding of horticultural plants. Utah.

The relative response of gooseberries, currants, red and black raspberries, blackberries, young apple trees, and corn, when growing in the same soil, to applications of fertilizers. N.Y. Cornell.

Miscellaneous fruit, vegetable, ornamental, and nursery stock studies. Ariz.

Greenhouse cropping for one season. Oreg.

Muck land experiments.--To study the various muck land problems in northern Indiana from a horticultural standpoint, fertilizer treatment for vegetables and melons and variety tests. Ind.

Greenhouse investigations.--To determine what greenhouse crops are best grown in North Dakota, the best varieties, and how best to grow the crops under North Dakota conditions. N.Dak.

Effect of lime on injury by chemical fertilizers. Pa.

Horticultural survey of the State. Utah.

Utilization of horticultural products. Utah.

Miscellaneous horticultural observations. Mont.

Nursery propagation. (South Haven Substation) Mich.

SEEDS AND SEED TESTING.

Germination studies.

Germination tests of vegetable seeds. N.Y. State.

Physiology of seed germination. Minn.

Studies of the germination of beet seed. N.J.

Studies of the germination of celery seed. N.J.

Best laboratory medium for the germination of corn. N.J.

Storage and germination of seeds. N.Y. State.

Cold storage of garden seed.--To determine the effect of cold storage in checking the germination and vitality of garden seed. La.

Purity and germination tests of official seed samples. N.Y. State.

Analyses and germination tests of collected (official) samples. Md.

Analyses and germination tests of collected (unofficial) samples. Md.

Production and distribution.

Experiments in seed production. Idaho.

Garden crop investigations. Pure seed production. (Northwest Branch Station, Crookston) Minn.

Pure seed distribution.--To increase and distribute pure seed of the various crops which have been improved. (Aberdeen Substation) Idaho.

Increase and distribution of seed. Wash.

To increase and disseminate pure seeds of cereal and forage crops. N.D.

Pure seed production and distribution. (Southeast Demonstration Farm, Waseca) Minn.

Cooperative seed production and distribution. Minn.

Cooperative distribution of seed, trees, shrubs, and plants. (Northwest Branch Station, Crookston) Minn.

Seed and plant distribution.--To encourage more general and more diversified plantings, to provide good seeds and plants which can not be obtained elsewhere on the island, and to pave the way to a more highly developed general agricultural system. Guam.

Miscellaneous.

Seed testing. Minn.

Seed testing for users of agricultural seeds. N.Y. State.

The enzymotic and other chemical changes concurrent with loss of viability in seeds. Ky.

Studies on the longevity of grass and clover seeds. N.J.

A study of plant growth and crop production in relation to size and weight of seed. N.J.

Influence of form and amount of sulphur on growth and development of seed and of sulphur loving plants. Wis.

Preliminary tests of different fertilizing substances and mixtures on seeds. Ky.

Disinfecting seeds. N.J.

Investigation in the drying of agricultural seeds for the reduction of moisture content as a preservative measure in storage. N.J.

WEEDS.

Eradication and control.

Weed control. Iowa, Utah.

Weeds and their control. Ark.

Study of methods of weed eradication. Wis.

Cost of weed eradication. Wis.

Spraying for weeds. Wash.

Eradication of weeds from seed beds and transplant beds, and in forest plantations, by chemical sprays. N.Y. Cornell.

A comparison of rotations for effect on weed control. S.Dak.

The control of weeds on comparative crop rotations. S.Dak.

Experiments in the eradication of bindweed. Trials of chemical and tillage methods of eradicating bindweed, (Convolvulus arvensis). (Fort Hays Substation) Kans.

To determine a practical method of eradicating Johnson grass. N. Mex.

Eradication and control. (Cont.)

Morning glory control. Clean culture method. Oreg.

Vitality of Canada thistle seed. (Northwest Branch Station, Crookston) Minn.

A survey of the occurrence of the perennial sow thistle with methods of controlling and eradicating it. Minn.

Vitality of sow thistle seed. (Northwest Branch Station, Crookston) Minn.

Miscellaneous.

Weed plats or the influence of fertilizers on the natural vegetation. N.J.

Seed investigations and seed control. The germination of weed seeds. Iowa.

The weed beds of upper Cayuga Lake. N.Y. Cornell.

The preparation and distribution of specimen cases of noxious weed seed. Minn.

FORESTRY.

Basket willows.

Basket willow culture and propagation.--To introduce them and study their behavior. Alaska.

Basket willow test.--To determine the best variety of commercial willow for Oklahoma. Okla.

Basket willow culture.--To study the financial returns, yield of roots and cultural methods involved in the raising of basket willows. Mich.

Forest management.

Woodlot management. Pa.

Determination of the best systems of management of the several natural and artificial types of native woodlands with respect: (a) To regeneration, (b) to increase wood production, and (c) to improve the quality of stand. Ohio.

Thinning of immature stands of white pine to improve the quality and rate of growth. N.H.

The effect of cleanings, thinnings, and improvement cuttings on the volume, growth, and sugar yield of stands of hard maple. N.Y. Cornell.

Forest management. (Cont.)

Effect of fires on wooded slopes. Iowa.

Effect of grazing on woodlots. Iowa.

Forest mensuration.

Studies in forestry yield and volume. Minn.

Preparation of volume tables for principal California species. Calif.

Volume, growth, and yield studies, in second-growth hardwoods, and with natural and planted stands of white pine, Scotch pine, red pine, and Norway spruce. N.Y. Cornell.

Forest nursery studies.

Forest nursery. Iowa.

State forest nursery. Testing of trees and shrubs suitable for windbreaks, timber, or landscape purposes, and the increasing and distribution (by sale) of promising species. (Fort Hays Substation). Kans.

Propagation of forest trees: Determination of the best methods for the production of forest planting stock. Ohio.

Fertilizing in forest nursery practice. Preliminary experiments in fertilizing Scotch pine in seed bed plats. N.Y. Cornell.

Forest products.

Investigations in forest products. Marketing forest products in Iowa. Iowa.

The rôle of microorganisms in destroying stored wood pulp. Minn.

Reforestation.

Studies in reforestation. (In cooperation with the Bureau of Animal Industry, U.S.D.A.) (Coastal Plains Substation) Miss.

Forest reproduction. A study of the underlying principles governing the natural reproduction of forest growth. Vt.

Reforestation: Studies of the rate of growth of tree species used in forest planting. Ohio.

Regeneration of planted woodlots. Iowa.

Reforestation. (Cont.)

Studies in forest regeneration. Propagation of exotic species. Minn.

Plots of natural regeneration of white pine and mixed hardwoods to determine the relative rate of growth. N.H.

Forest planting. Reforestation of waste lands with evergreens. Iowa.

Experiments in artificial reforestation of redwood cut-over lands. Calif.

Thickness of planting. (North Central Branch Station, Grand Rapids) Minn.

Comparative growth of different kinds of forest trees. (North Central Branch Station, Grand Rapids) Minn.

Methods of planting and management of forest plantations, windbreaks, and shelter belts. Ohio.

Determination of species, and mixtures of species adapted for commercial plantations, windbreaks, and shelter belts, in different sections of Ohio. Ohio.

The reforesting with useful trees of a tract of 200 acres denuded by charcoal burners. Porto Rico.

Tree planting - experimental.

Forestry plantation. (Northwest Substation) Mont.

Experimental tree planting. Idaho.

Forest plantations to determine best species of trees to plant for various purposes and different qualities of soils, and yields that may be expected at various ages from such plantations. Mich.

Experimental forest plantings. Pa.

Forest planting. Carolina poplar plantation on overflowed land. Iowa.

Forest planting. Hardy catalpa plantation on overflowed lands. Iowa.

Forest planting. Hardy catalpa planting on upland soil. Iowa.

Forest planting. Catalpa plantation on wet lands. Iowa.

Tree studies. Including cottonwood, white pine, European larch, and hardwood, and evergreen trees for Iowa planting. Iowa.

Forest planting. Cottonwood planting on islands in the Mississippi and Missouri rivers. Iowa.

Forest planting. Walnut plantation on overflowed land. Iowa.

Tree planting - experimental. (Cont.)

Forest planting. Underplanting hardwood with white pine. Iowa.

Maintaining an arboretum for testing of forest trees for ornament, shade, wind-breed, and building purposes. Tex.

Forestry experiments to determine methods of seeding and rate of growth of various species. S.C.

Tree plantings. N.Dak.

Windbreaks.

Windbreaks. Mich.

Windbreak planting investigations, including degree of success, soil, planting conditions, weather, and cultivation. Minn.

Windbreak and forestry plantations. (Northeast Demonstration Farm, Duluth) Minn.

Windbreaks: Comparing different methods of planting and subsequent methods of management. (North Central Branch Station, Grand Rapids) Minn.

Demonstration windbreak plantations. Minn.

Wood - Studies of.

Relative durability of Idaho woods. Idaho.

Relative durability of various pines, and of redwood cut from old and second growth. Calif.

Studies of Minnesota woods. A study of the physical properties of Populus tremuloides. Minn.

Determination of moisture content of different woods under various conditions and their adaptability for special purposes. Pa.

Properties and uses of second growth redwood. Calif.

Studies in the decay of wood. Colo.

Wood collection. Minn.

Miscellaneous.

Varietal tests. Kans.

Study of second growth on cut-over hardwood lands. Mich.

Miscellaneous. (Cont.)

Quantitative and qualitative forest increment on cut-over lands. Calif.

Quantitative and qualitative survey of cut-over lands. Minn.

Growing trees for fence posts.--To determine what varieties of trees are best adapted to post, pole, and shade purposes. Okla.

Forestry.--To determine the natural growth of pine due to protection from fire and grazing animals. (Fruit and Truck Substation, Hammond) La.

Forestry investigations.--To try out forest and ornamental trees to determine their value for shelter belts, post timber, and other uses. (Edgeley Substation) N.Dak.

Plantations of native and exotic tree species suitable to the climate of southern New Hampshire to determine their rate of growth. N.H.

A study of the growth and yield of various species of Eucalyptus on different sites in California. Calif.

A study of the development of stands of Sequicia gigantea. Calif.

Study of forest trees of Iowa. Germination of forest trees. Iowa.

A study of tolerance of forest trees. Vt.

Seed production of white pine in Ithaca regions. N.Y. Cornell.

A survey of the wastes resulting from the logging and milling of California redwood and associated species. Calif.

Factors affecting the cost of log making and skidding. Calif.

Forest survey: A survey of the forest areas of the State for the purpose of determining the resources in standing timber, the condition of the woodlands with respect to future yields, lands which should be permanently devoted to forestry, and the area and condition of idle areas within the State. Ohio.

Field observations in forestry. Pa.

Forest trees of Minnesota. Range and distribution studies. Collection of authentic material of leaves and fruits and preserving same. Minn.

Studies of farm woodlands. Idaho.

Phenological forestry observation. Pa.

Preparation of a manual of the trees, wild and cultivated, grown in Maryland, Md.

Sylviculture studies at Itasca Park. Minn.

Miscellaneous. (Cont.)

Working plan for Itasca Park. Minn.

Miscellaneous Itasca dendropathological experiments. Minn.

PLANT PATHOLOGY

Alfalfa diseases.

Alfalfa diseases. Investigations of the life history of the causative organisms and the effect of environmental factors, such as temperature and water content of the soil. La.

Pathological and physiological study of the anthracnose fungus (Colletotrichum trifolii) of alfalfa. Miss.

White spot of alfalfa. Ariz.

Apple diseases.

Apple diseases. N.Y. State.

Control of apple diseases. Ark.

Apple disease control investigations. Mass.

Apple leaf diseases.--To determine manner of overwintering, time and condition of infection, and methods of control of apple leaf spot and scab. W. Va.

Field and laboratory studies of fruit diseases, including Grimes disease (collar rot), apple blotch, apple blister canker, bacterial shot-hole of peach, apple scab, crown gall, and root rot of the strawberry. Ill.

Anthracnose control. A study of the persistence and efficacy of the spring Bordeaux - oil spray, Bordeaux in the delayed dormant summer and fall applications, and various proprietary Bordeaux mixtures. (Hood River Substation) Oreg.

Investigations for the control of the blister canker of the apple. Iowa.

Studies in the black rot of apples. (Arendtsville) Pa.

Black root rot of the apple. A study of symptoms, etiology, transmission, and control of this disease. Va.

Studies of the apple blotch. (Arendtsville) Pa.

Apple blotch investigations.--To determine the effect of dormant sprays upon the apple blotch fungus within the cankers and upon the subsequent development of the disease on fruit and young wood. Ind.

Apple diseases. (Cont.)

Treatment of apple canker disease. Testing methods of sterilizing cuts to prevent infection of blister canker and for sterilizing the cut surface of a cleaned canker. Mo.

Collar rot. W.Va.

Bacteria in crown gall of the apple. Iowa.

Effect of crown gall and nematode on growing apple trees. Ga.

Fire blight of apple. Ariz.

Apple flyspecks. A study of the morphology and taxonomy of the causal organisms. N.Y. Cornell.

Apple measles. N.Mex.

Apple ring rot. Ark.

A study of root rot of apples. Del.

Apple rust. Pa.

Apple rust. Detailed study of life history of fungus or fungi causing apple rust in West Virginia. W.Va.

The control of apple scab. N.H.

Apple scab and its control. Wis.

Spraying and dusting experiment for the control of apple scab. Pa.

Apple scab: The behavior of the disease and a critical study of the spraying program necessary for its control. Va.

Pre-pink application on apples for scab control. Mich.

Dusting and spraying apples. Mich.

Dusting v. spraying.--To determine the efficiency of dust methods of control of insects and fungus diseases of the apple. Ind.

Comparison of dusting and spraying for the control of insects and diseases on the apple. W.Va.

Effects of dusts in causing premature dropping of apples. N.Y. State.

Relative value of Bordeaux and lime sulphur for certain apple diseases. Ohio.

Apricot diseases.

Studies in the control of brown rot of apricots. Calif.

Avocado diseases.

Avocado diseases - notably fruit spotting and avocado scab. Fla.

Barley diseases. (See also Cereal diseases, - general.)

Barley smut. Wash.

New methods for smut control in wheat, oats, and barley. N.Y. Cornell.

Diseases of barley in Wisconsin caused by *Helminthosporium*, and their control. Wis.

Bean diseases.

Bean anthracnose. A study of methods of control. N.H.

Bean bacteriosis and anthracnose. The relative susceptibility of varieties. Minn.

The bacterial blight of the bean. The effect of environmental factors on the disease, the nature of the causal organism, and the production of disease-resistant stock. N.Y. Cornell.

Studies on the bacterial blight of beans to determine the relation of the time of planting beans to the severity of the attack. N.Y. State.

The dry-rot of the bean: (a) The nature and cause of the disease, (b) the effect of soil environment. N.Y. Cornell.

Bean rust.--To determine whether the rust of beans (*Uromyces appendiculatus*) can be carried from one crop to the next through seed. Ind.

Yeast spot of lima beans. Va.

Bean diseases.--To study the principal diseases of beans in the State and to perfect methods of control of *Bacterium phaseoli*. Okla.

The nature and control of Michigan bean diseases, including: (a) A study of bean mosaic, (b) a study of resistance of various bean varieties to anthracnose and mosaic. Mich.

Mosaic disease of beans and other legumes: nature, cause, control. N.Y. Cornell

Biologic specialization of parasitic fungi in relation to disease resistance in plants. Susceptibility of several varieties of beans to the different strains of anthracnose and rust of the bean. Colo.

Blackberry diseases.

Orange rust of blackberries.--To determine the facts with reference to the life history and pathology of the orange rust of blackberries and raspberries. Ind.

Cabbage diseases.

Cabbage diseases. Tex.

Cabbage disease investigation.--To determine the relative economic importance of the various cabbage diseases in the market, garden, and kraut crops of cabbage in Indiana with particular reference to yellows, club root, blackleg, black root, and early blight. Ind.

Diseases of cabbage affecting the seed growing industry; methods of control. N.Y. Cornell.

Club root of cabbage. Pa.

The determination of the cause, effect on host, control, and importance of wire stem on cabbage seedlings occurring at Eden Valley. N.Y. Cornell.

Cabbage yellows. Va.

Cabbage yellows. Work on control measures. Iowa.

Cabbage breeding for the control of yellows. Iowa.

Cabbage diseases of Wisconsin and their control, including yellows, black-rot, blackleg, and club root. Wis.

Canker-- European.

European canker. Life history and control measures. Oreg.

Carrot diseases.

Carrot diseases on Long Island. N.Y. State.

Investigation of carrot blight. Etiological, pathological, symptomatic, and therapeutical studies of the disease with morphological, physiological, and taxonomic studies of the pathogene. Mass.

Cauliflower diseases.

Cauliflower diseases on Long Island. N.Y. State.

Cauliflower diseases on Long Island; causes and nature of the diseases and extent of losses due to them. N.Y. Cornell.

Celery diseases.

The comparative effectiveness of copper dust and spray for the control of celery blights. N.Y. Cornell.

Investigation of celery root rot. N.J.

Fusarium root-rot of celery. Ohio.

Investigations relating to celery diseases: (a) Septoria apii as a pathogen; (b) Fusarium stunting of celery. Mich.

Seed bed diseases of celery. Fla.

Cereal diseases - general. (See also specific grain diseases.)

Disease studies with cereals. Iowa.

A bacterial disease of cereals. Ark.

Bacterial diseases of grain, grasses, and soy beans and their control. Wis.

Ergot of cereals. The relation between the disease on wild grasses and on rye and other cereals. Seed treatments. Minn.

Investigations on grain rust. (In cooperation with the U. S. Department of Agriculture) Wis.

Life cycle studies.--To determine the facts with reference to the sequence of spore forms in certain autoecious rusts. Ind.

Rust investigations. Life history and cultural studies.--To determine, through field observations and greenhouse and field infection experiments, the life history of certain rusts: Studies with reference to biological forms and the influence of the host on the morphology of the rust. Ind.

Epidemiology of cereal rusts. Minn.

Biologic specialization in cereal rusts. Minn.

Study of environmental conditions influencing the development of stem rust in the absence of an alternate host (barberry). Nebr.

Agronomic studies of rusts of cereals: (a) Devising remedial treatments for soil, seed, and plants; (b) Breeding resistant varieties. (In cooperation with the Office of Cereal Investigation, U.S.D.A.) Calif.

Miscellaneous rust investigations.--To increase our knowledge of plant rusts, through studies of their life history, morphology, cytology, physiology, taxonomy, with special reference to those phases of the subject that will contribute to a better understanding of the general biology, phylogeny, and pathology of the group. Ind.

Cereal diseases - general. (Cont.)

The inheritance of the various biologic forms of stem rust. Minn.

Cereal leaf rust disease investigations.--To determine, with reference to leaf rusts of wheat, barley, and rye, their life history, fixity to hosts, biological forms, if any, and the relation of these to forms found on other related wild or cultivated grasses; factors involved in their dissemination, virulence on different varieties, a study of physiological and ecological factors in relation to host and parasite, and an investigation of the possibilities of control through the development and by the selection or breeding of disease-resistant varieties or strains. Ind.

Rust investigations.--To bring together in form for publication the manuscript of all the species of rust occurring in North America, including Central America, the Canal Zone, and the West Indies, which have not been previously published in the "North American Flora." Ind.

Investigation of stripe rust caused by Puccinia glumarum. Idaho.

Varietal and hybridizing work in connection with rust resistance in cereals. Minn.

A study of rust resistance in small grains. S.C.

The nature of resistance of cereals to rust. The biochemistry of the resistance of wheat to stem rust. Minn.

The genetics of rust resistance in cereals. Minn.

Studies of the behavior of and control methods for wheat rust; wheat, oats, and sorghum smuts; and corn smut and root rot. Kans.

Rust and smut control in wheat and other cereals and grasses.--To investigate the life histories and characteristics of the rusts and smuts of cereal grains and grasses; to determine their chief modes of attack, the conditions under which they are most destructive and to establish proper methods of control. N.Dak.

Control of smut diseases of cereals. Iowa.

Agronomic studies of smuts on cereals: (a) Devising remedial treatments for soil, seed, and plants, (b) Breeding resistant varieties. (In cooperation with the Office of Cereal Investigation, U.S.D.A.) Calif.

Smut treatments. The effect of different methods of treatment on the development of covered smuts. Minn.

Loose smut. Varietal susceptibility. Minn.

Cereal disease investigations, primarily stinking smut. Oreg.

Cereal diseases - general. (Cont.)

The foot rot of wheat and other cereals. Wash.

Imperfects on cereals and roots, mainly on the host range of Helminthosporium, causing a serious root and foot rot of wheat, barley, and rye.--To determine the conditions under which the disease develops. Minn.

"Take-all" of cereals. (In cooperation with the Office of Cereal Investigation, U.S.D.A.) Oreg.

Investigations of the take-all disease of cereals and grasses. Distribution, host range, causal organism, life history, and control, with a field plot study of varietal resistance of wheat varieties grown in New York. N.Y. Cornell.

Seed treatment of cereals. Ark.

Cereal disease investigations.--To learn what varieties are resistant to disease in order to breed disease resistant strains. N.Dak.

Barberry eradication. Minn.

Cherry diseases.

Control of cherry leaf spot. S.C.

Leaf spot of cherry and plum and its control. Wis.

Control of leaf spot and brown rot on cherries. Mich.

Cherry root disease. Ohio.

Citrus diseases.

Citrus canker. Growth characters of organism. Fla.

Soil and nutrition studies with reference to die-back of citrus. Fla.

Die-back in the Yuma citrus orchard. Ariz.

Citrus diseases. Melanose and stem end rot. Fla.

Citrus scab. Spraying experiments to determine the proper time for spraying, and the best sprays for the control of the disease. Fla.

Observations and studies on internal decline of lemons. Calif.

Clover diseases.

The study of corn root-rot and Fusarium root rot of clover. Chic.

Investigation of the eelworm disease of clover. Idaho.

Corn diseases.

Corn disease investigations.--To assist and promote investigations on certain corn crop losses and the diseases responsible therefor: to determine the facts relative to the distribution of these diseases: to develop and test control methods; and to breed disease-resistant strains and varieties. Ind.

Root and stem rots of corn.--To study the organisms found on and in corn kernels, and their effect upon germination and yield. La.

Root, stalk, and ear rots of corn. Pa.

Fusarium root, ear, and stalk rots of corn in New York State; causal organisms, life history, and control. N.Y. Cornell.

Root, stalk, and ear rots of corn. Investigation of the etiology, pathogenesis and saprogenesis of the organism causing rot of the root, stalk, and ear of corn and its allies, and a study of the pathological histology of the hosts. Ind.

Fusarium diseases of corn. Iowa.

Corn rot investigations. (Northwest Branch Station, Crookston) Minn.

Investigations on root rot diseases of corn. Ky.

A study of corn root diseases. S.C.

Corn root rot. Miss.

Experiments on corn root rot. Colo.

Corn root rot.--To determine the causes and to select strains resistant to the disease. Md.

A study of the root rot of corn, including a study of the causal organisms in relation to this and other hosts, environmental factors, and methods of control. N.J.

Corn root rot, its control and relation to wheat scab. (In cooperation with U.S.Department of Agriculture). Wis.

The study of corn root rot and Fusarium root rot of clover. Chio.

Corn smut. Minn.

Cotton diseases.

A study of cotton anthracnose. S.C.

A study of the bacterial diseases of cotton. S.C.

Cotton diseases. (Cont.)

The control of bacterial blight (angular leaf spot) of cotton. Ark.

Effect of alkali on the resistance of Egyptian cotton to black arm and angular leaf spot. Ariz.

Effect of alkali on the resistance of Egyptian cotton to Ozonium omnivorum (Texas root rot). Ariz.

Cotton rust experiments.--To determine the effect of salt as compared with potash in preventing cotton rust on Mecklenburg clay loam soils. N.C.

Cotton wilt. Investigations of the life history of the fungus, and test of wilt resistant varieties. La.

A study of biological strains of cotton wilt fungus, and means of its dissemination. Ark.

A study of miscellaneous cotton diseases. S.C.

Cowpea diseases.

Diseases of soy beans and cowpeas. Del.

Cranberry diseases.

Cranberry disease work. Mass.

Crown gall.

Crown gall. Ariz.

Crown gall investigations. Iowa.

Study of the comparative infectiousness of the crown gall organism (Bacterium tumefaciens) with special reference to finding resistant forms of prunus suitable as a root stock for the various stone fruits. Calif.

Cucumber diseases.

Cucumber diseases and their control.) (In cooperation with the U.S. Department of Agriculture and Heinz Pickle Company) Wis.

A bacterial disease of cucumbers. Fla.

Studies of the cucumber mildew. Life history of the fungus, methods of reproduction, wintering, and methods of control. W.Va.

Cucumber diseases. (Cont.)

Experimental spraying for control of cucumber mildew under glass. Mass.

Date diseases.

Studies of Alternaria, Penicillium, and Aspergillus as date rots. Ariz.

Disease resistance. (See also Genetics. - Inheritance of disease resistance.)

Plant nutrition and its relations to parasitism involving a study of the causes and relationship of attack and mode or causes of resistance to attack of parasitic fungi in flax, cereals, and associated crops. N.Dak.

External conditions affecting resistance or susceptibility. N.Y. Cornell.

Biologic specialization of parasitic fungi in relation to disease resistance in plants. Susceptibility of several varieties of beans to the different strains of anthracnose and rust of the bean. Colo.

The biochemistry of disease resistance in plants. Minn.

Eggplant diseases.

Phomopsis of eggplant. Fla.

Eggplant wilt. N.J.

Seed bed diseases of eggplant. Fla.

Fig diseases.

Fig diseases. Calif.

Flax diseases.

Flax rust. Minn.

Studies with flax rust and resistance of strains and varieties. Minn.

Flax wilt. Minn.

Flower diseases.

China aster diseases. N.Y. State.

Aster blight control.--To determine methods of control for the aster blight and develop resistant strains. Ind.

Flower diseases. (Cont.)

Study of aster diseases, especially "wilt" and "Yellows".--To determine methods of controlling these diseases and selection of resistant strains. Ill.

Studies on the life history and parasitism of Sclerotium rolfsii and related forms, special study of a disease of Delphinium caused by Sclerotium sp. N.Y. Cornell.

Corn rots of gladiolus. Life history studies; nature of the rots; control. Investigations of the most important diseases (at least three) of this plant. N.Y. Cornell.

Fusarium wilt of golden seal. Life history study and identification of causal organism, temperature relation, control. N.Y. Cornell.

Phytophthora bud rot of Bermuda lilies. N.Y. Cornell.

Diseases of the rose. An investigation of the more important diseases under glass and out of doors. Life history studies; temperature relations; control. N.Y. Cornell.

Powdery mildew of roses. Ariz.

Rust of snapdragons. Ariz.

Snapdragon rust and its control. N.H.

Selection of plants.--To determine the possibility of eliminating certain physiological diseases from commercial floricultural crops. Ill.

Forage crop diseases.

Disease studies with forage crops. Iowa.

Diseases of forage crops and grasses. Determination of causes. Fla.

The control by seed treatment of certain pathological organisms causing diseases of certain southern forage crops, with special reference to the leaf spot and anthracnose of bur clover, the blight (Ascochyta and Protocoronospora) of vetch, the bacterial blight of soy bean, and the anthracnose of Sudan and Johnson grasses. Ala.

Forest and shade tree diseases.

Blister rust of conifers. Pa.

Studies in white pine blister rust control. Minn.

A study of Armillaria mellea (oak root fungus.) Calif.

Forest and shade tree diseases. (Cont.)

Bacteriose of poplar. Ariz.

Leaf spot of poplar. Ariz.

Fruit diseases.

The brown-rot disease of orchard fruits, with special reference to the etiology of the disease. N.Y. Cornell.

Studies of fruit rotting sclerotiniae. Md.

Fruit tree diseases.

Field and laboratory studies of fruit diseases, including Grimes disease (collar rot), apple blotch, apple blister canker, bacterial shot-hole of peach, apple scab, crown gall, and root rot of the strawberry. Ill.

A study of heart rots of orchard trees and methods of prevention. Survey in stone fruit orchards and experiments on efficiency of copper nails in the disinfection of pruning cuts. Oreg.

Fruit tree root rot investigations. A study of Armillaria root rot. Oreg.

Fire blight. Wash.

Fungicides. (See also Economic Entomology, Insecticides.)

A study of the fundamental factors affecting the suspension, adhesiveness, toxicity, and general efficiency of copper fungicides. Mass.

The adhesive quality of copper acetates. N.H.

Investigations with a solution of copper sulphate and ammonium carbonate in water, applied as a fertilizer and fungicide, on greenhouse plants. Oreg.

Nature and prevention of formaldehyde injury to cereals. Mich.

The action of sulphur fungicides. N.H.

Insecticidal and fungicidal properties of sulphur. N.Y. State.

The effect of fungicides and insecticides on plants. N.H.

Toxic action of fungicides on parasitic fungi. N.H.

Reactions between inorganic materials used as insecticides and fungicides when mixed to form combination sprays or dusts. N.Y. State.

Fungicides. (Cont.)

New insecticides and fungicides. N.Y. State.

Disinfectants for blight control work. (Talent Substation) Oreg.

Fusarial diseases.

The fusarial diseases of plants. Mo.

Fusaria causing wilt in Tennessee. Morphological, culture, and pathological study of the fungi. Tenn.

Grape diseases.

Rot of grapes. Ariz.

Some phases in the life history of Septoria ampelina on grape. N.Y. Cornell.

Grapes: Disease control. Miss.

Spraying investigations for the control of insects and diseases of the grape. Iowa.

Grass diseases.

Diseases of forage crops and grasses. Determination of causes. Fla.

Bacterial diseases of grasses, grain, and soy beans, and their control. Wis.

Investigations of the take-all disease of cereals and grasses. Distribution, host range, causal organism, life history, and control, with a field plot study of varietal resistance of wheat varieties grown in New York. N.Y. Cornell.

Rust and smut control in wheat and other cereals and grasses.--To investigate the life histories and characteristics of the rusts and smuts of cereal grains and grasses; to determine their chief modes of attack, the conditions under which they are most destructive, and to establish proper methods of control. N.Dak.

Timothy rust. Minn.

Horse-radish diseases.

Investigation of horse-radish root rots.-- To determine their control by selecting disease-free roots for planting and the efficiency of controlling the root rots with corrosive sublimate and formaldehyde treatments. N.J.

Lettuce diseases.

Lettuce diseases. Ohio., Tex.

Lettuce diseases. (Cont.)

Investigations of methods for controlling lettuce drop. Mass.

Study of the nature, cause, and control of lettuce tip burn, particularly with reference to the relation of weather, associated organisms, and fertilizers; also varietal resistance. N.Y. Cornell.

Control of bottom-rot of lettuce through selection and breeding. N.Y. Cornell.

A monographic study of two lettuce diseases, - the bottom-rot and the stunt. N.Y. Cornell.

Study of transmission of lettuce mosaic through the seed. N.Y. Cornell.

Lettuce rot. Ariz.

Seed bed diseases of lettuce. Fla.

Melon diseases.

Diseases of cucurbits, especially downy mildew of the canteloupe. Del.

Anthracnose of melons. Ariz.

Mosaic diseases. (See also specific crops.)

A detailed study of mosaic of plants. Ga.

Transmission of the mosaic diseases.--To determine, first, by what means the mosaics and allied diseases may be transmitted, and secondly, to what extent they can be transferred from one host species to another. N.Y. Cornell.

Mosaic disease of beans and other legumes: Nature, cause, control. N.Y. Cornell.

Muskmelon diseases.

Cucurbit disease investigations.--To ascertain the relative economic importance of anthracnose, fusarium wilt, and blossom end rot of the Indiana watermelon crop; the relative importance of anthracnose, alternaria, leaf blight, and mosaic in the muskmelon crop of Indiana; and to study methods of control and the efficacy of seed treatment. Ind.

Oat diseases. (See also Cereal Diseases - general.)

Oat smut. Wash.

Oat treatment for smut control. (Northeast Demonstration Farm, Duluth) Minn.

Oat diseases. (Cont.)

New methods for smut control in wheat, oats, and barley. N.Y. Cornell.

Dry copper carbonate, chlorophol, and Seed-o-san for control of loose smut in oats. Ohio.

Oat smut and wheat scab. W.Va.

Onion diseases.

Investigation of onion diseases. Mass.

Onion disease investigations.--To determine which of the onion diseases are limiting factors in the yield and market value of the onion crop of Indiana. Ind.

To determine the nature and seriousness of the onion pink root disease; control measures, including soil treatment and selection for resistance. N.Y. Cornell.

Onion smut control investigations. Oreg.

The relation of soil character to occurrence of onion smut. Mass.

Storage rots of onions. Tex.

Pea diseases.

Investigations of pea blight. Wis.

A study of the root rot of the field pea, including a study of the causal organisms in relation to this and other hosts, environmental factors, and methods of control. N.J.

Root rot of peas.--To determine the causes and to select strains resistant to the disease. Md.

Pea root rot in Delaware and its control. Del.

Peach diseases.

Peach diseases. Utah.

Relation of brown rot to peach twigs. N.J.

A study of the life history and control of brown rot and curculio. Ga.

Peach wilt. N.J.

Peach yellows and little peach. N.J.

Peach diseases. (Cont.)

Diseases of the peach and their control, especially yellows and brown rot. Del.

Field and laboratory studies of fruit diseases, including Grimes disease (collar rot), apple blotch, apple blister canker, bacterial shot-hole of peach, apple scab, crown gall, and root rot of the strawberry. Ill.

Pear diseases.

Pear blight control with special emphasis on horticultural methods. Calif.

Study of resistance of pears to blight. N.Y. Cornell.

Breeding pears for resistance to pear blight. Ga.

Blight resistance in pears. Relative resistance or susceptibility to pear blight of all known species of Pyrus. (Talent Substation) Oreg.

Pear blossom blight. Oreg.

Fire blight of pear. Ariz.

Spraying experiments for the control of the pear fruit and leaf spot. N.J.

Dusting and spraying pears. Mich.

Pecan diseases.

Pecan diseases. Ala.

Study of a pecan disease. Fla.

Pecan scab studies. Miss.

Pepper diseases.

A bacterial disease of peppers. Fla.

Identification, life history, and control of organism causing chili blight. N.Mex.

Investigation of fruit rot of peppers. Ga.

Sclerotium wilt of the pepper. Investigations of the life history of the fungus, effect of environmental factors; survey of host plants affected. La.

Pineapple diseases.

Pineapple diseases - wilt: (a) Isolation and study of the organisms present, (b) study of conditions favoring the disease, (c) importance of varieties, and (d) experiments looking toward control. Fla.

Plant disease survey.

Plant disease survey. (In cooperation with Bureau of Plant Industry, U.S.D.A.) Ark.

A plant disease survey of the state. Conn. State., Del.

Plant disease survey.--To obtain a more definite knowledge of what diseases are important in this State and to secure data on their distribution; to assist in the discovery of new diseases which may have been lately introduced into the State; to bring to the attention of farmers, horticulturists, and others the more important plant diseases and the wide spread losses they may cause; and to assist in control work. Ind.

General plant disease surveys and investigations, including greenhouse diseases, truck crop diseases, and diseases of other crops. Mich.

Plant disease survey. Minn., S.C., Utah.

Plant disease survey. Records annually, through correspondence and observations as to prevalence and severity of plant diseases through Oregon. Oreg.

Plant disease survey work. Pa.

Plant disease survey including blight of cherries, bacterium blight of raspberries, Fusarium rot of onions, violet Rhizoctonia, and other new or little known diseases. Wash.

Plum diseases.

Leaf spot of cherry and plum and its control. Wis.

Rot of plums. Ariz.

Experimental plum spraying.--To determine the comparative effectiveness of dust and liquid sprays for the control of brown rot of plums. Minn.

Potato diseases - Irish.

Potato diseases. Wis.

Potato investigations. Tuber and leaf diseases. (Northwest Experiment Farm, Crookston) Minn.

Investigations of tuber-borne diseases of the potato. N.J.

Potato diseases - Irish. (Cont.)

Potato disease investigations.--To determine which potato diseases are limiting factors in the production and market value of the potato crop in Indiana and to determine the effectiveness of seed disinfection and spraying as a control measure for potato diseases in the State. Ind.

Degeneration diseases of the potato. Identification, transmission, survey, and control, including mild mosaic, crinkle mosaic, rugose mosaic, leaf roll, streak, spindling tuber disease, unmottled curly dwarf, and combinations of these. Me.

An investigation of potato diseases which attack the tuber internally, particularly a study of the organisms associated with wilt and stem end rot. N.Dak.

To determine the etiology and control of Michigan potato diseases, including seed treatment methods, soil treatments for potato scab investigations of Bacillus atrosepticus causing blackleg, and the development of mosaic and leaf-roll-free strains of potatoes. Mich.

Potato diseases.--To compare tubers produced under vines, sprayed with those not sprayed the preceding year; to determine the comparative value of different methods of treating tubers for controlling black scurf. Minn.

Potato disease investigations, including scab, Rhizoctonia, blackleg, mosaic, and hopper-burn. (Upper Peninsular Substation) Mich.

Discovery of the cause, distribution, and control of little known potato diseases. N.Y. Cornell.

Potato diseases in relation to seed and crop production. Iowa.

To determine the cause of the spots in potato fields commonly attributed to lightning. These injuries are sometimes attributed to a phoma which commonly occurs on the dead plants. Work is being conducted on the effect of electro currents on plants and on inoculations with the fungi found associated with the dead plants. N.Y. Cornell.

Control of foliage diseases of the potato by application of Bordeaux mixture. N.J.

Bacterial blight of Solenaceae. (Smith's brown rot). Fla.

Blackleg of potato. Oreg.

A study of the etiology of the blackleg disease of potatoes. Nebr.

Potato investigations. Spraying for early blight. (West Central Branch Station, Morris) Minn.

Dusting tests.--To compare dusting and spraying for control of late blight and other diseases of the potato. Ohio.

The effect of various dusts in comparison with Bordeaux spray, on early blight, late blight, and tip-burn of potatoes. N.Y. Cornell.

Potato diseases -- Irish. (Cont.)

Dusting v. spraying of potatoes for the control of blights and insect pests. N.Y. State.

Communicability of leaf-roll of the potato. Pa.

To determine whether leaf-roll and mosaic of the potato can be controlled by isolating the seed plat and roguing it thoroughly. N.Y. State.

A study of the leaf-roll and mosaic diseases of potatoes, particularly the relation of potato mosaic to diseases of other plants, the causes of mosaic and leaf-roll diseases of potatoes, the influence of various factors on the symptoms of these diseases, and the control of these diseases by roguing, isolation of disease-free strains, and other methods. N.Y. Cornell.

Degenerative diseases of potatoes. An attempt to determine the possibility of detecting the presence of mosaic, leaf-roll, and other foliage degenerative diseases by the inspection of the seed. Vt.

A study of methods for eliminating mosaic and leaf-roll from seed potatoes by roguing, indexing, and seed treatment. N.Y. Cornell.

Investigations of potato mosaic in Idaho. Idaho.

Irish potato mosaic disease.--To determine the amount of mosaic and the increase, if any, from using home grown seed. Ia.

Rhizoctoniosis of potato. Ariz.

Experiments in the control of Rhizoctonia of the potato. Idaho.

Formaldehyde disinfection studies in relation to the control of Rhizoctonia on potatoes. N.Y. Cornell.

A study of the relation of time, temperature, and concentrations on the killing of the sclerotia of Rhizoctonia on potatoes and the killing of potatoes in treatments of potatoes with mercuric chlorid solutions. N.Y. Cornell.

Potato scab. Ariz., Vt.

Physiological studies of potato scab. N.J.

Investigations in potato culture. Seed treatment for scab. (Northeast Demonstration Farm, Duluth) Minn.

Investigations of the use of elemental sulphur for the control of Actinomyces chromogenus G. the cause of common scab of the Irish potato. N.J.

Studies on the relation of time, temperature, and concentration to the disinfection of the common scab of potato with corrosive sublimate. N.Y. Cornell.

The Fusarium wilt of potatoes. Pa.

Fusarium of potato tubers. Mont.

Potato diseases - Irish. (Cont.)

Environmental conditions as related to the infection and progress of Fusarium wilt and tuber rot of potatoes. Nebr,

Potato diseases. Studies of Rhizoctonia and Fusarium wilt and mosaic. Utah.

Verticillium wilt of potatoes. Oreg.

The potato wart disease and its control. Pa.

Relation of external conditions to infection and development of the potato wart disease caused by chrysophlyctis. N.Y. Cornell.

Sprindling sprout disease of the potato tuber. Md.

A study of "calico" and russet dwarf diseases of potato. Idaho.

Investigations on "yellow dwarf" of the potato, a new and obscure disease of the crop in New York State. An attempt to describe a causal organism and the measures for its control. N.Y. Cornell.

A study of the heredity of resistance in potato to Phytophthora infestans. N.Y. Cornell.

Storage rots of Irish potatoes. Tex.

Seed treatment of Irish potatoes. Ark.

Potato seed disinfection. Ind.

Raspberry diseases.

Raspberry diseases. N.Y. State.

Diseases of small fruits and methods of control, especially raspberry diseases. Minn.

Studies of the Anthracnose of raspberries. Ill.

Control of Anthracnose on raspberries. Mich.

To determine the facts with reference to the life history and pathology of the orange rust of blackberries and raspberries. Ind.

Rhubarb diseases.

A rhubarb disease. Pa.

Root-knot.

Investigation of root-knot nematode and its relation to various host plants. Ga.

Root-knot. (Cont.)

Root-knot control. Ark.

Control of nematode root-knot. Fla.

Root rot diseases.

Root rot investigations. (Hood River Substation) Oreg.

Root rot diseases of New Mexico crops.--To obtain information as to the cause, nature, and control of these diseases. N.Mex.

Texas root rot investigations.--To learn the cause of Texas root rot of cotton, sweet potatoes, alfalfa, and cowpeas. Tex.

Seeds, as disease carriers, treatment, etc. (See also diseases of specific crops)

Seed-borne plant diseases. N.Y. State.

Control of seed-borne infections. Effect of various treatments on the viability of seeds. N.C.

Diseases of seeds.--To find diseases that are carried in the seed and means of disinfecting seed carrying parasitic diseases, and to study the trouble due to immaturity. Md.

Small fruits, diseases of.

Diseases of small fruits and methods of control, especially raspberry diseases. Minn.

Cane fruit disease investigations with special reference to Anthracnose and crown gall. Wis.

Sorghum diseases. (See also Cereal Diseases - General.)

Sorghum smuts and methods of control.--To compare the two common smuts, kernel and head, of the sorghum group, and to determine methods for their control. Okla.

Soy bean diseases.

Diseases of soy beans and cowpeas. Del.

A bacterial disease of soy beans. A study of a little known bacterial disease of soy beans with special reference to cause, symptoms, dissemination, cultural and inoculation studies, relation to leaf spot of velvet beans and other legumes, and means of prevention and control. N.C.

Bacterial diseases of soy beans, grasses, and grain, and their control. Wis.

Spinach diseases.

Spinach diseases. Tex.

Strawberry diseases.

Strawberry leaf scorch. Life history, isolation, culture, pathogenicity, and causal organism. N.C.

Leaf spot of strawberries. Ariz.

Strawberries: Control of leaf spot by spraying. Miss.

Field and laboratory studies of fruit diseases, including Grimes disease (collar rot, apple blotch, apple blister canker, bacterial shot-hole of peach, apple scab, crown gall, and root rot of the strawberry. Ill.

Sugar beet diseases.

Sugar beet diseases. Utah.

The entomology and parasitology of curly leaf of sugar beets. A study of the internal anatomy and histology of nonvirulent and virulent leaf hoppers. Calif.

Sugar cane diseases.

A study of sugar cane mosaic, root rot, and other important cane diseases, as to their life history, dissemination, and possible methods of control, including immunity studies with mosaic. La.

Mosaic disease.--To secure strains of sugar cane immune or resistant to mosaic disease. (Sugar Station) La.

To determine if insects transmit mottling disease in sugar cane, and if so, what insects. P.R.

Sunflower diseases.

Fungus diseases of the sunflower: (a) The organism causing the rot, (b) control measures. Colo.

Sunflower rust. The influence of fertilizers on the development of sunflower rust and the amount of resultant injury. Minn.

An investigation of a disease of cultivated sunflowers, known as sunflower wilt. Mont.

Sweet potato diseases.

Sweet potato diseases. Miss., N.J.

Sweet potato diseases. (Cont.)

Sweet potato diseases and storage diseases. Tex.

Mosaic of sweet potatoes. Ark.

Diseases of the sweet potato and their control, especially "pox". Del.

Varieties of sweet potatoes best suited to the section and also a study of the control of various diseases. Okla.

Tobacco diseases.

Tobacco diseases investigations. Development of resistant strains. Ky.

A study of leaf spot diseases of tobacco. (In cooperation with the U. S. Department of Agriculture). Wis.

Investigations of "must" of tobacco. (In cooperation with the U.S. Department of Agriculture) Wis.

A study of tobacco root rot in Georgia. Ga.

Fusarium root rot of tobacco. Ky.

Investigation of the Fusarium root rot of tobacco. (In cooperation with the U.S. Department of Agriculture) Wis.

Studies of Thielavia basicola, causing tobacco root rot. Conn. State.

Study of soil reaction as a means for the control of root rots of tobacco. Mass.

Investigation of the root rot disease caused by Thielavia: (a) Development of Wisconsin strains of tobacco resistant to root rot, (b) Development of root rot resistant White Burley tobacco for Kentucky and other districts, (c) Relation of rotation of host plants and non-host plants of Thielavia on the severity of the Thielavia root rot disease of tobacco, (d) Inheritance of disease resistance in tobacco to the root rot disease caused by Thielavia. (In cooperation with the U.S. Department of Agriculture) Wis.

Relation of manuring to root rots of tobacco. Ky.

Investigation on control of tobacco wildfire. Agencies and methods of dissemination, methods of infection and conditions governing same and control measures for seed-bed and field. Mass.

Tobacco speck disease. A disease first called speck and later designated as tobacco wildfire. The study includes the etiology, symptomatology, factors influencing infection, agents of dissemination, manner of hibernation, hosts, cultural studies of the organism, and experiments on prevention and control. N.C.

Tobacco diseases. (Cont.)

Wildfire, a bacterial disease of tobacco. Conn. State.

Blackfire and wildfire diseases of tobacco. Va.

Disease experiments with blackfire and wildfire of tobacco. (Chatham Substation) V

Investigation of the Fusarium wilt of tobacco. (In cooperation with the U.S. Department of Agriculture) Wis.

A study of mosaic diseases with special reference to the calico of tobacco. Conn. State.

A study of so-called "tobacco sickness". Mass.

Investigation of the "shed-burn" of tobacco. (In cooperation with the U.S. Department of Agriculture) Wis.

Tomato diseases.

Tomato diseases. Tex., W. Va.

Tomato disease investigations. Miss.

Investigation of tomato diseases: (a) Influence of soil moisture on blossom end rot, (b) nature and cause of the stripe disease. N.Y. Cornell.

Tomato disease investigations.--To determine: (a) Which tomato diseases, other than the Fusarium wilt and the Septoria leaf spot, are limiting factors in the production and market value of the tomato crop in Indiana, (b) whether or not certain disease-producing fungi, especially the form causing Septoria leaf spot, are carried with the seed, (c) the source of the primary infection of Septoria leaf spot, whether due to infestation of seed, seed bed, and hot bed or field soil, with special reference to origin of the disease in the field (diseased or contaminated transplants, over-wintering of fungus in the field or spread from neighboring fields), the mode of spread of Septoria leaf spot in the field (rain water, surface drainage water, wind, cultural practices), and the possibility of control of Septoria leaf spot. Ind.

Tomato bacterial spot or canker. Ind.

Tomato blight. Study of the life history of Septoria lycopersici. Md.

Control of leaf blight of tomato.--To devise practical methods for controlling Septoria leaf blight of tomato under field conditions. Md.

Experiments in the control of the western yellow tomato blight by breeding and selection. Idaho.

Winter blight of tomatoes. Pa.

Tomato blight and related diseases. Wash.

Tomato diseases. (Cont.)

Control of tomato leaf spot. Del.

Control of Septoria leaf spot of the tomato. Ind.

Tomato diseases, especially Septoria leaf blight and the Phytophthora blight, and means for the control of these diseases. Va.

Canning crop diseases, especially Rhizoctonia on the tomato; methods for its control. Diseases occurring in hot bed with methods for their treatment. Utah.

Studies of soft rot organisms, including the soft rot of tomato and other vegetables. Va.

Tomato wilt. Testing of varieties as to their resistance and the breeding and selection for wilt resistance. Also the effect of environment and other factors on the severity of the wilt disease. La.

Fusarium wilt resistant tomatoes.--To secure strains of canning tomatoes that will yield well on land infected with the wilt fungus prevalent in Maryland. Md.

The Fusarium wilt of tomatoes. Method of infection, factors governing infection, and relation of cell structure of host to resistance; and also to develop resistant varieties of tomatoes. Ca.

Seed bed diseases of tomatoes. Fla.

Controlling foliage diseases of the tomato with dusts and sprays. N.J.

Vegetable diseases, general.

Studies of diseases of certain truck crops caused by Sclerotinia and Botrytis. Pa.

Fusarium diseases of truck crops. Minn.

Studies of soft rot organisms, including the soft rot of the tomato and other vegetables. Va.

Miscellaneous truck crop diseases. Field observations on various crop diseases. Minn.

Walnut diseases.

The control or avoidance of walnut blight. Calif.

Watermelon diseases.

Diseases of the watermelon and their control in Texas.--To determine the cause of blighting and its relationship with *Anthracnose*; to determine the cause of blossom-end rot, the life history of *Collatotrichum lagenarium* and other organisms, and to determine the pathology, morphology, physiology, and cytology of affected plants. Tex.

Cucurbit disease investigations.--To ascertain the relative economic importance of *Anthracnose*, *Fusarium wilt*, and blossom-end rot of the Indiana watermelon crop; the relative importance of *Anthracnose*, *Alternaria*, leaf blight, and mosaic in the muskmelon crop of Indiana; and to study methods of control and the efficacy of seed treatment. Ind.

Wheat diseases. (See also Cereal diseases, general.)

Study of certain wheat diseases as related to the deterioration of wheat and the reduction in yield. Tenn.

An investigation on seed and seedling diseases of wheat, particularly as associated with *Fusarial* and *Helminthosporial* blights. N.Dak.

The foot rot of wheat and other cereals. Wash.

Oat smut and wheat scab. W.Va.

To determine the resistance of wheat varieties to scab. Minn.

Corn root rot, its control and relation to wheat scab. (In cooperation with the U.S. Department of Agriculture) Wis.

Cereal diseases. Control of loose smut of wheat. Va.

Varietal resistance of wheat to stinking smut. (In cooperation with the Office of Cereal Investigations, U.S.D.A.) Oreg.

The relation of soil moisture content to bunt or stinking smut infection in wheat. Idaho.

Control of stinking smut of wheat. Mich.

Experiments with various chemical dusts for the control of bunt in wheat. Idaho.

Wheat smut, Methods of control. Seed treatment.--To determine the cause of, and possible methods of controlling various forms of smut explosions and the possibility of catching and destroying a large percentage of the smut at the threshing machine in an effort to reduce the amount of soil contamination. Wash.

New methods for smut control in wheat, oats, and barley. N.Y. Cornell.

Hot water treatment of wheat.--To determine the effect of hot water treatment of seed wheat, on yield, on the seed-borne diseases of wheat other than loose smut and as a possible stimulant independent of disease control. Ind.

Wheat diseases. (Cont.)

Yellowberry in wheat. The cause of yellowberry in Turkey Red wheat in the Columbia Basin. Oreg.

Miscellaneous.

The relation of air and soil conditions to infection and progress of certain plant diseases. (in cooperation with the U.S. Department of Agriculture) Wis.

Study of soil temperature and climatic conditions in their relation to the prevalence of important plant diseases in Texas. Tex.

Relation of soil temperature to soil parasites and other organisms, including cabbage yellows, flax wilt, tomato wilt, potato Rhizoctonia, and legume tubercles. Wis.

Miscellaneous diseases of trees and crops. Iowa.

Miscellaneous plant disease investigation. Miscellaneous plant diseases. Kans.

Miscellaneous plant pathology studies. Ariz.

Miscellaneous pathological investigations. Oreg.

Minor investigations in plant pathology. Routine diagnosis from specimens and answers to inquiries. Calif.

Investigation of plant diseases in Hawaii.--To identify the principal plant diseases and develop methods for their control. Hawaii.

Notes on New York plant diseases. N.Y. State.

Southern sclerotial blight in Alabama. Ala.

A systematic study of the important so-called physiological diseases of plants occurring in California, especially the specific symptoms of little leaf and seemingly related diseases. Calif.

Investigations in pathology and control of root and seed infecting diseases, particularly of flax, cereals, and small grains.--To establish the relationship of root and seed infecting diseases of small grains and farm crops of North Dakota, particularly of flax, cereals, and grasses, to the methods of cropping and to determine means of control, and to prevent accumulation thereof in the seed and in the soil. N.Dak.

Chlorosis troubles.--To ascertain the best method of restoring the usual green color of trees and vines affected with chlorosis. N.Mex.

Study of the more serious fungus diseases of greenhouse crops. Ill.

The control of infectious diseases of shade trees. Ohio.

Miscellaneous. (Cont.)

Seed-bed diseases. Fla., N.J.

Phytophthora leaf spot of Bryophyllum. N.Y. Cornell.

Rust investigations.--To describe all species of rust occurring in North America including Central America, the Canal Zone, and the West Indies, which have not been previously published. Ind.

ECONOMIC ZOOLOGY.

(See also Veterinary Medicine, Parasites; Entomology, Mites, Red spiders, and Ticks)

Birds.

Food habits of birds in relation to gardens. Minn.

Life histories of birds of eastern North America. N.Y. Cornell.

The migration of birds. N.Y. Cornell.

The natural food of water fowl. N.Y. Cornell.

Methods of attracting birds. N.Y. Cornell.

The artificial propagation of the canvasback, the wood duck, the pin tail and teal, the bobwhite, and California quail, the golden and Amherst pheasants, the ruffed grouse, and other ornamental waterfowls and game birds. N.Y. Cornell.

Crow control.--To determine kinds of food and feeding ranges, roosting and nesting habits, range of egg laying, incubation and development, approximate benefit, damage done, and methods of control. Okla.

Crawfish.

A systematic and biologic study of the crawfish of Mississippi, with special reference to species injurious to agriculture, and to the means of controlling them. Miss.

Fish.

Conversion of vegetable pulp into fish food through the agency of herbivorous fly larvae (larvae of Muscidae and others). N.Y. Cornell.

Studies in milk waste: (a) For utilization of wastes for the production of fish food, and (b) the effect of milk on fish and other aquatic life. N.Y. Cornell.

Breeding and cultural experiment with bullhead catfish. N.Y. Cornell.

Fish. (Cont.)

Breeding experiments looking toward the production of a strain of warm-water trout that may be raised in an ordinary fish pond. N.Y. Cornell.

Breeding disease resistant brook trout. N.Y. Cornell.

Nematodes. (See also Plant pathology, Root knot.)

Nematode history studies. Ala.

Oysters.

Scientific methods of oyster culture. N.J.

Rodent and other mammals.

Rodent investigations. A study of the distribution, biology, injury, and means of control of the more important rodent pests of Nebraska, including house rats and mice, pocket gophers, prairie dogs, ground squirrels, and kangaroo rats. Nebr.

Life history of certain rodents and their effect upon grazing ranges, with special reference to the jack rabbit (Lepus alleni and L. californicus) and the small ground squirrel (Citellus tereticaudus). (In cooperation with the Biological Survey, Forest Service, U.S.D.A. and the Carnegie Institution.) Ariz.

The pocket gopher (Thomomys bulbiyorus). Life history, nature, and extent of damage to crops, suitable bait for poisoning, poisoning in field and in captivity, and distribution of poison. Oreg.

Injurious mammal investigations. Life histories of and control measures for injurious mammals, especially the mole and pocket gopher. Kans.

Campaign against injurious field rodents. Work against pocket gophers. Minn.

House rat control and rat campaign. Minn.

Protection against field mice. Studies on the breeding habits of Microtus and Peromyscus. Minn.

The natural history of the lowland marmot (Marmota flaviventer avara). Wash.

The Townsend mole. Life history, nature, and extent of damage to crops, suitable bait for poisoning, poisoning in field and in captivity, and distribution of poison. Oreg.

Miscellaneous.

Biological survey.--To make a survey of and collect biological and economic data upon native and introduced plants and animals of the State, their distribution, habits, and agricultural importance. W. Dak.

The zoological geography of Washington, including service work. Wash.

The frogs of Minnesota. Minn.

Earthworms and their effect on soil. Mont.

Studies of the physiological phases of reproduction in guinea pigs. Kans.

The banding of birds and bats. N.Y. Cornell.

ECONOMIC ENTOMOLOGY.

Alfalfa insects. (See also Field crop and specific insects.)

Insects injurious to alfalfa. Study of various hay worms, and of the pea aphid. Kans.

Insects injurious to alfalfa. Life history and diffusion of the alfalfa weevil (*Hypera postica*) and introduction and spread of the parasite *Bathyplectis curculionis*. Nev.

A study of the alfalfa weevil with the purpose of developing more effective methods for its control. Idaho.

Ants.

Ants of Colorado in their relation to plant lice. Colo.

Aphids. (See also insects of specific plants.)

Investigations on plant lice. Colo.

Ecological and life history studies of aphididae, with especial reference to the alternate food plants of migratory species. Me.

Biochemical, morphological, and systematic study of aphids. Tex.

Ants of Colorado in their relation to plant lice. Colo.

Studies on the bionomics and control of the plant lice affecting orchard fruits in Idaho. Idaho.

A collection of aphids of Aroostook County, Maine. Me.

A biological study of the oyster-shell bark louse. N.Y. Cornell.

Aphids. (Cont.)

Life history of Aphis prunifoliae as related to season. Kans.

The woolly aphid. Ark., Tenn.

Laundry soap in water as remedy for aphids.--To determine strengths at which this is fatal to aphids without injury to plants, as a simple remedy for use in gardens and other small areas where few plants are involved. N.C.

Transfer tests with aphids. Me.

Apple insects. (See also specific insects.)

Studies on apple insects. N.Y. State.

Ecological investigations of grape and apple insects. N.Y. State.

An investigation of aphids injurious to apples: (a) Field spray tests, and (b) the biology and habits of aphids as influenced by atmospheric conditions and their effect on the prevalence and activities. A study of host relationship. Oreg.

Apple flea weevil. Ohio.

Control of apple and peach tree borers. W.Va.

An investigation of the life history, habits, and control of the bud moth (Tmetocera Ocellana Schiff). Pa.

A study of the leaf rollers injurious to the fruit and foliage of apple in Pennsylvania. Pa.

The apple maggot. Minn.

Spraying for apple maggot.--To determine the efficiency of spraying with arsenate of lead as a means of control of the apple maggot under New Hampshire conditions. N.H.

Studies of the apple skeletonizer (Hemerophila parina). Conn. State.

Bionomics and control of the apple leaf-skeletonizer (Camptesia hammondi) and the bearing of the data obtained on other related species. Md.

Leaf rollers and fruit worms of the apple and pear. Study of species and tests of different sprays and time of spraying for control. Oreg.

The codling moth, lesser apple worm, and other related apple worms.--To determine relative normal abundance and responsibility for fruit injury of various species of fruit worms in different parts of the State; to secure accurate and definite data on the comparative life and seasonal history of the various species correlated with weather and the relation of the above data to the control of the various species. Ind.

Apple insects. (Cont.)

The lesser apple worm. Determination of local distribution and the factors governing it and study of the feeding habits of the larvae, together with the wild hosts of the species. Ark.

Dusting v. spraying.--To determine the efficiency of dust methods of control of insects and fungus diseases of the apple. Ind.

Comparison of dusting and spraying for the control of insects and diseases on the apple. W.Va.

Control of apple red bugs and aphids by dusting. N.Y. State.

Army worms.

Army worms, Cirphis unipuncta and Laphygma frugiperda. Life history, habits, natural enemies, food plants, and control measures. N.C.

Bean insects. (See also Truck crop and specific insects.)

Insect record, including observations on the native stalk borer, native corn ear worm, European corn borer, bean weevil, gypsy moth, and brown tail moth. N.H.

General insect investigations, including the beet web worm, the fruit tree leaf roller, the cutworms, and the Mexican bean beetle. Colo.

The Mexican bean beetle (Epilachna corrupta). A study of the insect under Alabama conditions and the importance of its control by natural methods. Ala.

Bean leaf beetle (Epilachna corrupta). Spread, life history, habits, food preferences, natural enemies, control. N.C.

Mexican bean beetle. Artificial control. Ala.

Bees.

Honey bees. Utah.

Bee keeping in Arkansas. Ark.

General observations of variable factors and conditions in bee-keeping, honey plants, etc. Ariz.

To effect greater production of honey per colony.--To determine the amount of increase in honey production by building up colonies previous to honey flows by judicious manipulation of brood. P.R.

Honey bees.--To encourage the bee industry by demonstrating methods and appliances for handling bees; rearing and distributing queen bees; investigating methods of increase and to keep record of honey production. Guam.

Bees. (Cont.)

To develop an experiment station apiary to ascertain the best type of bees for Oklahoma. The value of bees in the fertilization of alfalfa. Okla.

Experimental apiaries. Studies of regional bee control. Tex.

Methods of controlling mating. Minn.

Experimental apiaries. Queen cell production and management and the effect of honey flows upon the cell-building instinct. Tex.

Artificial fertilization of queen bees. Okla.

The egg-laying capacity of queens. Minn.

A comparison of Carniolan and Italian colonies. Minn.

Total reproduction and comparative reproductive capacity of the Carniolan, Italian, Caucasian, and "Banat" queen bees. Okla.

To demonstrate the possibility of commercial queen raising in Minnesota, its conditions, possibilities, and cost. Minn.

Winter packing of bees. S.C.

Methods of wintering bees; relation of physical characters of bees to honey production; and study of honey plants in Kansas. Kans.

The effect of temperature and humidity on the wintering of bees. Minn.

Study of proper conditions for bee cellars. Wis.

Winter consumption, mortality, spring development, honey crop of bees, bees wintered in cellars, in packing cases outside and double-walled hives outside. Minn.

Wintering colonies on natural honey, honey dew and honey, honey dew and sugar sirup, with pollen and on pure honey dew. Minn.

Summer and winter results with bees. Minn.

A study of the honey bee colony in confinement and the relation of stores and temperature to the health of the colony during that period. Wis.

A study of the nutrition of the honey bee. Minn.

Gathering and storing natural pollen through the winter for use in the spring. Minn.

A study of pollen substitutes. Minn.

Bees. (Cont.)

Experimental apiaries.--To test the practicability of reversing newly drawn brood combs during the pupation period of the first crop of brood, to prevent injury to combs, due to sagging. Tex.

To effect greater production of beeswax.--To determine the amount of increase in wax production by practicing certain manipulation of comb, supers, and brood chambers, during certain seasons of the year, using checks for comparison. P.R.

Experimental apiaries.--To determine the possibilities of refining beeswax by centrifugal force. Tex.

Time and labor factors involved in gathering, ripening, and storing honey by honey bees. Iowa.

The relation of tongue length and body size to the production of honey. Iowa.

A study of the temperature of the individual honey bee. Minn.

Meteorological influence on honey production. Iowa.

A study of the actual benefit derived from bees as pollinators of plants. Minn.

Maintenance of bees in greenhouses. Md.

Honey plants in Iowa. An investigation of the production of honey. Iowa.

Bee and honey survey of Minnesota. Minn.

Experimental apiaries. The effect of size of hive upon the strength and productiveness of colonies. Tex.

Maintenance of a model apiary. Minn.

Records of business management of apiaries. Mich.

The diseases of adult bees. Minn.

Bee disease inspection. Minn.

Causes of mortality of package bees in shipment. Minn.

A study of the bacteria which is found to be the cause of honey bee paralysis. The physiological characters of the bacillus. Okla.

Foul brood eradication. Tex.

Spread and control of American foul brood. Wis.

To investigate the relative susceptibility of the honey bee to compounds of arsenic, with special reference to the excessive mortality of bees following orchard spraying. Wash.

Bees. (Cont.)

Does spraying orchards kill bees? Mass.

Beet insects.

General insect investigations, including the beet web worm, the fruit tree leaf roller, the cutworm, and the Mexican bean beetle. Colo.

Beetles. (See also Weevils and specific crops.)

Biology of the Genus *Diabrotica*. The corn root worm and melon beetle. A study of the economics and methods of control of the species of this genus. N.C.

Annotated list of the Halticini of College Park and vicinity.--To identify and list the flea beetles and study their food plants. Md.

A study of the Tachinidae of the Cayuga Lake Basin. N.Y. Cornell.

White grub investigations. Iowa.

The activities and injuries of the cloaked knotty horn beetle (*Desmocirus palliatus*). N.Y. Cornell.

The respiratory system of *Osmoderma socialis*. N.Y. Cornell.

Venation studies in Coleoptera. N.Y. Cornell.

Brown-tail moth.

Insect record, including observations on the native stalk borer, native corn ear worm, European corn borer, bean weevil, gypsy moth, and brown-tail moth. N.Y.

Cabbage insects. (See also truck crop and specific insects.)

Studies of cabbage insects. N.Y. State.

Susceptibility of cabbage aphids and caterpillars to dusting. N.Y. State.

The cabbage maggot - *Phorbia brassicae*; life history, habits, and methods of control on cruciferous crops. Pa.

Control of cabbage maggot in cabbage seed beds and early cabbage plantings. N.Y. State.

The control of the cabbage maggot with corrosive sublimate. N.Y. Cornell.

Cabbage insects. (Cont.)

To test and prove efficiency of dusting with arsenates to control cabbage worms. (Swannanoa Substation) N.C.

Cane insects. (See also field crop and specific insects.)

To determine insect pests of sugar cane, cotton, corn, and truck crops, together with a miscellaneous collection of insects from the Island. Virgin Islands.

Control of white grubs in cane cultivation.--To control ravages of white soil grubs in sugar cane cultivation. Virgin Islands.

Carrot insects.

Studies on the carrot rust fly. N.Y. State.

Cherry insects.

Cherry aphid. Wis.

A study of the life history of the cherry fruit sawfly (Hoplocampa cookei Clarke) and its control. Calif.

Chinch bugs.

Chinch bug investigations. Mo.

Citrus insects. (See also specific insects.)

The control of the orange tortrix. Calif.

The larger plant bugs on citrus, pecan, and truck crops. Fla.

Clover insects. (See also field crop and specific insects.)

A study of the life history, habits, and methods of control of certain clover pests, especially the clover seed midge. N.Y. Cornell.

A study of the clover aphid and methods for its control. Idaho.

A biologic study of the clover seed caterpillar with a consideration of the methods of control. N.Y. Cornell.

Codling moth.

The codling moth. Wash.

The codling worm. Ohio.

Codling moth studies. Colo.

Studies of the life history and control methods of the codling moth. Idaho.

Codling moth studies. Life history study as a basis of an effective spraying program for control. Oreg.

Investigations of the life history of the codling moth in New Mexico. N.Mex.

Study of the number of broods of the codling moth to determine the presence and importance of the second brood and whether it is necessary to spray for it. Mass.

The control of the codling moth.--To give the life history data a practical test by spraying experiments. Ark.

Codling moth control.--To set the optimum time for the August spray directed against the codling moth. Mich.

The codling moth. Ecology and control. Improved spray practices, new combination sprays, and better technique. Oreg.

A study of the life cycle of the codling moth and the best time and method of applying insecticides for controlling it.--To ascertain if it is possible to improve the present methods of controlling the codling moth. Mo.

Codling moth control and arsenical residue investigations. Calif.

Coffee insects.

Study of coffee leaf miner.--To find practical control measures, and to judge value of parasites in the coffee. P.R.

Corn insects. (See also field crop and specific insects.)

Insect investigations.--To determine insect pests of corn, cotton, sugar cane, and truck crops, together with a miscellaneous collection of insects from the Island. Virgin Islands.

The corn plant louse. (Aphis maidis). Study of life history. Okla.

The European corn borer. Ohio.

The corn ear worm. Ohio.

Corn insects. (Cont.)

Seasonal history of the corn ear worm. Iowa.

Corn ear worm investigations. Studies of oviposition and corn varietal resistance. Kans.

An investigation to determine the life history, development, and habits of the corn ear worm, and practical methods of controlling its ravages --To find some means of preventing this pest from injuring field and sweet corn. It feeds on a wide variety of plants but its main injury is on corn. The old method of fall plowing is not entirely effective and the attempt is made to find some treatment of corn ears which will keep them out. Mo.

Corn ear worm. Determination of the effect of the time of planting and varieties on the control of this insect. N.C.

Corn stalk borer (Diatraea saccharalis). Study of occurrence, distribution, destructiveness, life history, habits, natural enemies, and control measures. N.C.

Insect record, including observations on the native stalk borer, native corn ear worm, and European corn borer, bean weevil, gypsy moth, and brown-tail moth. N.H.

Bionomics and control of the corn root aphid (Aphis maidiradicis). Md.

Insects injurious to corn, including: (a) The southern corn root worm or bud worm, Diabrotica duodecimpunctata, (b) the corn ear worm, Heliothis obsoleta, and (c) the corn weevil, Calandra cryzae. La.

Western corn root worm. A study of the life history and possible new methods of control of this species. Iowa.

Black corn weevil (Calandra cryzae).--To determine whether corn is more injured when shocked or when left on stalk in row, increase or decrease of injury through winter, other field factors bearing on the injury. (Menona Substation) N.C.

Cotton insects. (See also field crop and specific insects.)

A study of the life histories, habits, distribution in the State of Texas, effect of environmental factors and methods of control of insects affecting cotton. Tex.

The ecology of cotton insects with special reference to competition for food and inter-relation. Ark.

Insect investigations.--To determine insect pests of cotton, sugar cane, corn, and truck crops, together with a miscellaneous collection of insects from the Island. Virgin Islands.

Cotton insects. (Cont.)

Cotton pests. The boll weevil. Okla.

A study of the influence of different factors on the hibernation of the boll weevil. S.C.

Cotton boll weevil.--To determine spread year by year, habits, life history and natural enemies under North Carolina conditions, control measures. (In cooperation with the Bureau of Entomology, U.S.D.A.) N.C.

Methods of controlling the boll weevil. Ga.

Dusting as a means of boll weevil control. S.C.

Dusting cotton with calcium arsenate against cotton boll weevil. Ala.

Boll weevil control. Tests of calcium arsenate, both as a dust and spray, as well as mixed with molasses and applied by hand. (Holly Springs Substation) Miss.

Poisoning cotton. The effect on the yield from the use of calcium arsenate for poisoning the boll weevil. (North Louisiana Experiment Station, Calhoun). La.

Biology of the Thurberia boll worm. (Thurberiphara catalina). Life history and relation to cultivated cotton. Ariz.

Cotton red spider control.--To determine control measures for the red spider (Tetranychus bimaculatus Harvey) on cotton, best suited to Arkansas conditions. Ark.

Cowpea insects. (See also field crop and specific insects.)

The cowpea aphid. Okla.

The cowpea weevil. Okla.

Cranberry insects. (See also fruit and specific insects.)

Study of injurious and beneficial insects affecting the cranberry. (Cranberry Substation) Mass.

Crickets.

Distribution, life history, economic importance, natural enemies, and control of the common field cricket (Gryllus assimilis Fab.) S.Dak.

Tree crickets of Oregon. Life histories, habits, and distribution of species of the genus Cecanthus found within the State; methods of control; bark diseases associated with tree crickets; parasites and predaceous enemies. Oreg.

Cucumber insects.

Studies of cucumber insects. N.Y. State.

Biology of the striped cucumber beetle (Diabrotica vittata). Ark.

Currant insects.

Control of the currant aphid. N.Y. State.

Cutworms.

Life history studies of cutworms. Mont.

The life history of several common cutworms. Nebr.

Cutworms. Study of species occurring, life histories, habits, natural enemies, control measures. N.C.

General insect investigations, including the beet web worm, fruit tree leaf roller, cutworms, and the Mexican bean beetle. Colo.

The pale western cutworm in North Dakota.--To study the habits of the insect and to determine satisfactory means of control. N.Dak.

Earwigs.

The European earwig. Methods of control. Oreg.

False chinch bug.

The false chinch bug. The annual number of broods, time of hibernation, emergence, and best methods of control. Okla.

Field crop insects.

Field crop insects of southern Kansas. Life Histories of kafir ant, seed corn maggot, and certain sorghum infesting insects. Kans.

Insects injurious to roots of staple crops. Studies of May beetles, Lechnos-terna scarbaediae, wire worms and false wire worms. Kans.

Fleas.

A study of the fleas (Siphonaptera) of New York State. N.Y. Cornell.

Flies. (See also Parasites, external.)

Taxonomy of the Anthomyiidae. N.Y. Cornell.

Monograph of North American Plecoptera. N.Y. Cornell.

Biology of Pollenia rudis. Md.

Life habits of Syrphus flies. Colo.

A biological study of the family Tachinidae.--To determine the relationship between the parasite and host; a study of the variation in species to determine its cause and development; life history studies. Tex.

Control of black flies, including the distribution of the various species and observations on the hibernating habits. N.H.

Anatomy of the larva of the crane fly, Tipula abdominales. N.Y. Cornell.

A study of the horse-flies of the State. Minn.

House fly control. Minn.

Control of root maggots. N.H.

Forest insects.

Miscellaneous studies in forest entomology, insect taxonomy, and insect biology. Calif.

Fall canker worm in mountain forests. Life history, habits, food preferences, natural enemies, and possibilities of control. N.C.

The boxwood leaf miner. Md.

A detailed study of the distribution, injuries, life history, and habits of the European elm scale, with special reference to its control. N.Y. Cornell.

The life history and control of the hickory gall aphid. N.Y. State.

The life history and habits of the maple leaf cutter. N.Y. Cornell.

Relations of insects to slash. Minn.

Effect of physical factors upon insects in freshly cut logs. Minn.

Fruit insects.

Control of fruit insects. Mich.

General insect investigations, including the beet web worm, fruit tree leaf roller, cutworms, and the Mexican beetle. Colo.

Fruit insects. (Cont.)

Orchard insect investigations.--To adapt present knowledge and to discover better methods of effecting the control of insect species as they become sufficiently prominent to merit attention. N.J.

Small fruit insect investigations.--To adapt present knowledge and to discover better methods of effecting the control of insect species as they become sufficiently prominent to demand attention. N.J.

Investigations and demonstrations in the control of insects attacking deciduous fruit trees in California. Calif.

To prevent borers from destroying fruit and shade trees, including the pear psylla, fruit leaf roller, San José scale, grape leaf hopper, and other pests as they may appear. Mich.

Grape insects. (See also Fruit and specific insects.)

Ecological investigations of grape and apple insects. N.Y. State.

Control of the grape-berry moth. N.Y. State.

Life history and relationships of the grape leaf hoppers. Ky.

To ascertain the safeness of paradichlorbenzene to grapevines and its effectiveness against the grape root worm. M.Y. State.

Spraying investigations for the control of insects and diseases of the grape. Iowa.

Grass insects.

Grass and forage insects. Ohio.

Grasshoppers.

Grasshoppers. Utah.

Grasshoppers. Study of the atlantic group. Mont.

A study of the egg deposition of injurious grasshoppers of Iowa. Iowa.

Investigation and control of grasshoppers. Nebr.

Grasshopper control. Colo.

Grasshopper control. The relative efficiency of different poison mixtures in poisoning grasshoppers. Nebr.

Greenhouse insects.

Greenhouse insect investigations.--To adapt present knowledge and to discover better means of controlling the species of insects injurious to greenhouse production, as their prominence and lack of knowledge of how to control them seems to demand attention. N.J.

Study in the control of insect pests in greenhouses, including aphids, aleyrodidae, coccids, millipeds, and chrysanthemum midge. Mich.

The life history and control of the greenhouse mealy bug. Md.

The life history and control of the red spider.--To study the life history under greenhouse conditions and to develop satisfactory methods of control. Md.

Gypsy moth.

Insect record, including observations on the native stalk borer, the native corn ear worm, European corn borer, bean weevil, gypsy moth, and brown-tail moth. N.H.

Hemiptera. (See also aphids, scale insects, leaf hoppers, and insects of specific crops.)

The Hemiptera of Connecticut. Conn. State.

Hemiptera - ecological and life history studies of Maine species of economic importance, with a view to remedial measures. Me.

Studies of the frog hoppers or spittle bugs. Conn. State.

Hessian fly.

Hessian fly investigations. Life history, control measures, and wheat varietal resistance. Kans.

The fall history of the Hessian fly, limits of the brood or broods if more than one. Ky.

To determine accurately the life cycle of the Hessian fly in Missouri, and the most effective methods of controlling it. Mo.

Hessian fly control. Ohio.

Parasites of Hessian fly. A study of the species occurring, abundance, effectiveness, etc. N.C.

Household insects. (See also flies.)

Household insects. Species occurring, habits, life history, damage, and control measures. N.C.

Studies in the control of insect pests of dwellings and stored food, including white ants, bed bugs, ants, carpet beetles, roaches, grain and flour beetles, and moths. Mich.

Bionomics of the cockroach. N.Y. Cornell.

The fish moth.--To determine the life history, systematic relationship, and methods of control of this pest. Okla.

Hymenoptera.

Investigation to determine the economic importance of digger wasps in relation to agriculture. Their value as destroyers of injurious insects. Mass.

Scoliidae of Belgian Congo. N.Y. Cornell.

Revision of the Thynnidae of Chile. N.Y. Cornell.

Insecticides and fumigants. (See also Horticulture, - Spraying, dusting, and fumigating.)

Orchard spraying. Insecticides. Minn.

The toxicity of the insecticide compounds of arsenic. Wash.

Specific toxicity of various chemicals on insects and their hosts. A study of the arsenicals. Minn.

Preparation and properties of calcium arsenates. N.Y. State.

Preparation and properties of arsenates of lead. N.Y. State.

Determination of best strength of lime sulphur. Mass.

The volatility and toxicity of nicotin as an insecticide and parasiticide. Calif.

Determination of efficiency of nicotin sulphate dusts. Mass.

Comparative insecticidal properties of nicotin sulphate and tobacco dust. N. Y. State.

The preparation and use of nicodust and other dust materials for the control of plant pests and diseases. Calif.

Reactions between tobacco and other organic dusts and other materials used in the preparation of toxic dusts. N.Y. State.

Insecticides and fumigants. (Cont.)

Stability of nicotin carrying compounds. N. Y. State.

Composition and toxicity of various substances containing nicotin. N.Y. State.

Insecticidal and fungicidal properties of sulphur. N.Y. State.

Preparation and properties of sulphid solutions. N. Y. State.

The use of carbon tetrachlorid either alone or in combination with paradichlorobenzene or chloropicrin for fumigating grain in elevators. Minn.

Insecticide investigation. The chemical, physical, and insecticidal properties of commercial pine oils and creosotes and their action on various insects as well as on plants and the germination of seed. Md.

New insecticides and fungicides. N.Y. State.

Comparative insecticide tests.--To study the lethal effect of new insecticides on plant tissues. Md.

Investigation of materials which promise value in insect control. Mass.

Study of the comparative toxic values of little-known insecticides and a comparative study of the powers of resistance of insects to poisons. Oreg.

Comparison of dry and liquid insecticides in controlling fruit insects. Kans.

Investigation of more recent insecticides and their value under Wisconsin conditions. Wis.

Investigations of adhesiveness of insecticides. N.Y. State.

Study of possible injurious effects of scalecide on trees. Mass.

Reactions between inorganic materials used as insecticides and fungicides when mixed to form combination sprays or dusts. N.Y. State.

Killing efficiencies of dust mixtures with different physical properties. N.Y. State.

A study of the most practical methods for the mechanical distribution of poison dust for combating the alfalfa weevil with a view to a more even distribution of the poison and its more rapid application. Idaho.

Study of the chemistry of arsenical insecticides. Mass.

Neutralization of soluble arsenic, copper and lead compounds with calcium or magnesium. N.Y. State.

Insecticides and fumigants. (Cont.)

Dormant spraying.--To determine insecticides satisfactory for the control of scale insects at various parts of the dormant season, particularly insecticides which might be uniformly effective throughout the dormant season. Ark.

Tests of the value of various spreaders for sprays under Idaho conditions. Idaho.

Study of causes of burning of foliage by insecticides. Mass.

The effect of insecticides and fungicides on plants. N.H.

Comparative susceptibility of various insects to contact dusts containing various fillers and adhesives. N.Y. State.

Immunity to sprays. Wash.

Fumigation of citrus trees. (Riverside Substation) Calif.

An investigation of the species factor in insect control by fumigation. Ala.

Control of insects by means of impregnation of the sap of plants with poisonous substances. W.Va.

Leaf hoppers.

Biology of the Homoptera (Leaf hoppers). Study of the ecology, distribution, systematics and economics of the members of this group. N.C.

Leaf hoppers on potatoes. Minn.

The entomology and parasitology of curly leaf of sugar beets. A study of the internal anatomy and histology of nonvirulent and virulent leaf hoppers. Calif.

Leaf miners. (See also insects of specific plants.)

A biological study of the dipterous leaf miners. N.Y. Cornell.

Biology and control of the dipterous leaf miner Diarthronomyia hypogaea, the chrysanthemum midge. Md.

Leaf rollers.

The leaf roller. Wash.

Leaf roller investigation. (Hood River Substation) Oreg.

Melon insects. (See also truck crop and specific insects.)

Injurious insect pests of the melon and related crops. Special attention directed to the striped cucumber beetle, the spotted beetle, the melon louse, the squash stink-bug, and the squash vine borer.--To determine what pests must be dealt with by growers of these crops and to develop a practical and effective means for preventing and controlling them. Mo.

Effects of dust mixtures on cucurbits and melon aphids and beetles. N.Y. State.

Midges.

The study of the biology and control of the rose midge. (In cooperation with the Bureau of Entomology, U.S.D.A.) Md.

Biology and control of the dipterous leaf miner Diarthronomyia hypogaea, the chrysanthemum midge. Md.

Mites. (See also insects of specific plants.)

Tests of methods of control of the European red mite. Md.

Studies of the European red mite (Paratetranychus pilosus) and methods of destroying its eggs. Conn. State.

Spider mites on fruit trees.--To determine species, distribution, and methods of control. N.Y. State.

Mosquitoes.

Mosquitoes and their control. Species occurring in the State, their distribution, abundance, habits, and control measures. N.C.

Mosquito control.--To discover the principles which underlie mosquito breeding, mosquito flight in attraction to man, and to free the areas in New Jersey which are now seriously troubled with mosquitoes from the incubus of this pest. N.J.

Malaria-mosquito investigations.--To devise means of combatting malaria in those sections of the State where this disease is a serious handicap to agricultural development. Calif.

A study of the mosquito fauna of New York State. N.Y. Cornell.

Nursery insects.

An investigation to determine what insects are injurious to nursery stock in the State, their life histories, distribution, injury, and methods of control. Mo.

To ascertain a method of control of the woolly aphid, especially applicable to trees in the nursery. Md.

Odonata.

The dragon flies of Connecticut. Conn. State.

Onion insects. (See also truck crop and specific insects.)

To study the control of the onion maggot. Mass.

Parasites, external. (See also Flies, Mosquitoes, and Ticks.)

Poisonous insects. Minn.

A catalog, both host and parasite, of the parasites of insects. N.Y. Cornell.

Insect parasites of man and animals. N.Y. Cornell.

Insects injurious to live stock. Horse flies, family Tabanidae, and horn fly (Haematobia irritans). La.

Insects and parasites affecting live stock. The screw worm and goat louse. (In cooperation with the Bureau of Entomology, U.S.D.A.) Tex.

Studies of fly repellants. Minn.

Repelling stable flies. Md.

Value of fly repellant (pine-tar creosote). Md.

Parasites of insects.

The biological control of injurious insect species, with particular reference to insect parasitism. N.Y. Cornell.

An investigation of the possibilities of artificial propagation and distribution of predaceous and parasitic insects. Oreg.

Studies of the California white-fly-eating lady-bird beetle, Delphastus catalinae, and attempts to further distribute the same. Fla.

Attempts to establish and distribute the Sicilian mealy-bug parasite, Paraleptomastix. Fla.

Search and observation for promising parasites of scale-insects and Aleyrodidae, both fungus and animal. Fla.

A study of Tetrastichus asparagi, an important parasite of the asparagus beetle (Crioceris asparagi). N.Y. Cornell.

Pea insects.

Investigations of the pea aphid and pea weevil. Wis.

Investigations of pea moth. Wis.

Peach insects. (See also fruit and specific insects.)

Peach deforming plant bugs. N.Y. State.

Control of peach plant bugs by dusting. N.Y. State.

Peach and plum curculio. Life history, habits, biology, natural enemies, and control measures. N.C.

A study of the life history and control of brown rot and curculio of peaches. Ga.

Control of peach and apple tree borers. W. Va.

The toxic reactions of the peach tree borer as affecting control.--To ascertain the color reactions of adult peach tree borers. Md.

Control of peach borers with paradichlorobenzene. N.C.

To ascertain the safeness and effectiveness of paradichlorobenzene for the control of the peach borer. N.Y. State.

Paradichlorobenzene treatment for the control of the peach borer (Aegeria opal-escens H. Edw.), the pear root aphid (Eriosoma lanuginose, Hartwig), the woolly apple aphid (Erisoma lanigera, Hanson). Calif.

A study of the life history and control of the peach twig borer (Anarsia lineatella). Calif.

The peach and prune root borer. Life history studies and tests of washes, sprays, paints, and protectors. Oreg.

Pear insects. (See also fruit and specific insects.)

Pear insects. Life cycles of various species with reference to period of occurrence of damage and characteristic injuries to fruits. N.Y. State.

Leaf rollers and fruit worms of apple and pear. Study of species and tests of different sprays and time of spraying for control. Oreg.

Pecan insects. (See also specific insects.)

Pecan insects. Study of economic importance, life history, habits, biology, and control measures of insects affecting the pecan. (Substations) N.C.

Pecan insects. (Cont.)

A systematic and biological study of insects affecting the pecan. Miss.

Investigations of the pecan bud moth. Tex.

The larger plant bugs on citrus, pecan, and truck crops. Fla.

To determine the life history, ecology, and control of the pecan weevil (Balaninus caryae Horn.). Ala.

Phenological insect investigations.

Climate and insect investigations.--To discover the general principles which underlie the response of injurious insects to the climatic complex and to develop important clues to new and better methods of insect control. N.J.

Relation of temperature to insect life. W.Va.

The relation of temperature and moisture to insect activity. S.C.

Studies of the effects of temperature and moisture conditions in the behavior of the Hessian fly, chinch bug egg parasite, Aphis maidis, and Aphis prunifoliae. Kans.

Studies of areas with late frosts as shown by insect distribution. Mass.

Plum insects. (See also fruit and specific insects.)

Peach and plum curculio. Life history, habits, biology, natural enemies, and control measures. N.C.

Control of plum curculio. Wis.

Potato insects. (See also field crop and specific insects.)

Studies of potato insects. N.Y. State.

The potato aphid (Macrosiphum solanifolii) with reference to its relation to potato mosaic. Me.

Potato beetle control. Mont.

Potato spraying and flea-beetle control. Determination of spraying program for best control of the flea-beetle and other potato insects, also other methods of flea-beetle control if needed. N.C.

Dusting v. spraying of potatoes for the control of blights and insect pests. N.Y. State.

Prune insects. (See also fruit and specific insects.)

The peach and prune roct borer. Life history studies and tests of washes, sprays, paints, and protectors. Oreg.

Raspberry insects.

Studies on raspberry insects. N.Y. State.

The life history of the raspberry fruit worm Byturus unicolor. Conn. State.

Red spider.

The control of red spider in deciduous trees. Calif.

The life history and control of the red spider.--To study the life history under greenhouse conditions and to develop satisfactory methods of control. Md.

An investigation of the life history, habits, and control of the imported red spider. Pa.

Rhododendron insects.

Studies of the rhododendron borer. Conn. State.

Rice insects.

Insects affecting rice. (Crowley Substation) La.

San José scale.

San José scale; life history and control.--To study the life history and the effectiveness of different scalecides in the control of this insect. N.Mex.

Studies on the comparative insecticidal value of various sulphid and polysulphid preparations with reference to the control of the San José scale. N.Y. State.

The newer insecticides in San José scale control. Ohio.

Scale insects. (See also San José scale.)

Date of hatching of scale insects, and fixing dates for spraying the same. Mass.

Scale insects. (Cont.)

Scale insects of St. Croix and their control.--To determine the number of species of scale insects and host plants of each, found on St. Croix Island. To use spraying experiments to effect a control for the insects. Virgin Islands.

The Coccidae or scale insects occurring in the State. The species present, their distribution, hosts, natural enemies, and methods of control. La.

Systematic and biological study of scale insects of Mississippi. Miss.

Oyster shell scale. Mont.

Shade tree insects.

Shade tree insect investigations. Study of insects affecting elms and cedars. Kans.

Insects affecting shade and shelter belt trees in North Dakota.--To determine the various insects that cause damage to shade and shelter belt trees in the State and to conduct experiments concerning adequate means of control. N.Dak.

To prevent borers from destroying fruit and shade trees, including the pear psylla, fruit leaf roller, San José scale, grape leaf hopper, and other pests as they may appear. Mich.

Soy bean insects.

Green clover worm (Plathypena scabra) on soy beans. Life history, habits, natural enemies, and control measures. N.C.

Squash insects. (See also Truck crop and specific insects.)

Control of the squash bug. Mass.

Control of the squash-vine borer. Mass.

Stored product insects.

Studies in the control of insect pests of dwellings and stored food, including white ants, bed bugs, ants, carpet beetles, roaches, grain and flour beetles, and moths. Mich.

A study of the rôle of temperature and humidity in the development of insects in flour and other cereal products in storage. Minn.

Stored product insects. (Cont.)

Measures for protecting wheat flour substitutes from insects. Minn.

Control of insect pests of growing crops, stored products, and live stock, with special reference to the increase and conservation of food products. Md.

Strawberry insects. (See also Fruit and specific insects.)

Control of the strawberry aphid. Md.

Life history investigations of the strawberry crown-borer (Tyloderma fragariae Riley). Tenn.

Life history investigations of the strawberry root louse (Aphis forbesi Weed). Tenn.

The strawberry weevil. Life history studies of this insect in the Ozark region. Ark.

Life history investigations of the strawberry weevil (Anthonomus signatus). Tenn.

Dusting strawberry fields to control the strawberry weevil. Md.

Sugar beet insects. (See also field crop and specific insects.)

The sugar beet root louse. Mont.

Sweet potato insects. (See also field crop and specific insects.)

Control of sweet potato scarabee experiments.--To try to lessen ravages of the Scarabee among sweet potatoes grown on the Island. Virgin Islands.

The life history, habits, and control of the sweet potato weevil, Cylas formicarius, Fabr. Tex.

Termites.

The white ant. (Termes flavipes). Okla.

Biology of the termites. N.Y. Cornell.

Classification of South American termites. N.Y. Cornell.

Thrips.

A study of the life history of euthrips and Cryptothrips floridensis. Fla.

Camphor thrips. Observations on distribution, life history, food plants, and control. Fla.

Ticks.

A study of the Ixodidae (ticks) of New York State. N. Y. Cornell.

Investigation of cattle tick.--To determine life history of cattle tick, including starvation period. P.R.

Tick investigation. Spotted fever tick. Mont.

Tobacco insects. (See also field crop and specific insects.)

Tobacco flea beetle.--To secure a satisfactory method of control for this insect under farm conditions. H.C.

Truck crop and garden insects.

Garden or truck insects. Ohio.

Truck crop insect investigations. Collecting and rearing of larvae of various insects attacking truck crops. Virgin Islands.

Truck crop insects and control. Wis.

Vegetable insect investigations.--To adapt present knowledge and to discover better methods of affecting the control of insect species as they become sufficiently prominent to merit attention. N.J.

Insect investigations.--To determine insect pests of truck crops, corn, cotton, and sugar cane, together with a miscellaneous collection of insects from the Island. Virgin Islands.

Important insects affecting garden crops: (a) Harlequin cabbage bug, cabbage aphids, cabbage butterflies, cabbage loopers, flea beetles, onion thrips, cutworms, squash bug, cucumber beetles, and possible new pests, (b) to learn of the natural enemies and other factors influencing the prevalence of the pests, (c) to determine possible adequate and practical means of control. N.Mex.

An investigation of the life history, habits, and methods of control of the plant lice (Aphididae) affecting truck crops. Pa.

Control of the corn-ear worm on truck crops. W.Va.

Millipedes affecting truck crops and field crops. Pa.

The larger plant bugs on citrus, pecan, and truck crops. Fla.

Turnip insects.

The turnip webworm (Hellula undalis). Life history and methods of control. Ala.

Velvet bean insects. (See also field crop and specific insects.)

Life history studies of the velvet bean caterpillar (Anticarsia gemmatilis). Fla.

Walnut insects.

The codling moth in walnuts. Calif.

Weevils. (See also insects of specific crops.)

Biology of the genus Bruchus (Bean and pea weevil). Life history studies and methods of control. N.C.

Wheat insects. (See also field crop and specific insects.)

The wheat stem maggot (Meromyza americana Fitch), its distribution, food plants, economic importance, life history, habits, natural enemies, and control. S.Dak.

Wire worms.

The wire worm. Wash.

Study of the life history, methods of control, and relation of soil type to destructive wire worms. Iowa.

Wire worms, false.

Bionomics and control of false wire worms, injurious to dry-land grains. Idaho.

Miscellaneous.

Miscellaneous insects. Utah.

Indiana insect survey.--To explore, exploit, record, map, collect, and study the the insect fauna of Indiana; to determine the occurrence and range of all insects of the State and to study their relation to plants, animals, human welfare, etc. Ind.

Insect survey of Montana. Mont.

Insect survey of North Carolina.--To secure as full information as possible concerning the insect life of the State, the species occurring, distribution, economic relations, biology, and ecology. Preparation of lists, collections, maps, etc. N.C.

Miscellaneous. (Cont.)

Insect collection. Minn.

Collection and identification of Arizona insects, especially the economic forms.
Ariz.

Studies of insect outbreaks in various localities as they may appear. Mass.

Determination of limits of pests in Massachusetts to determine what part of the State, if any, need not pay attention to these pests. Mass.

The nutritional requirements of certain insects (Tribolium confusum Duval). Minn.

Problems in the embryology of insects (parthenogenesis, paedogenesis, etc.)
N.Y. Cornell.

The possibility of transmitting an infestation of the granary weevil (Calendra granaria) from infested wheat to macaroni through the process of milling Semolina and manufacturing macaroni. Minn.

Soil infesting insects. N.J.

Insects injurious to market milk.--To determine the importance of the various species concerned, to adapt already known measures and to discover better ones for any species that proves to be seriously injurious. N.J.

Insect control. Okla.

Corroborative control studies.--To test the efficiency and practicability under Indiana conditions of controls reported elsewhere, including control of the peach tree borer, San José scale, oyster shell scale, cucumber beetle and aphids, cabbage maggot, onion maggot, onion thrips, and Hessian fly. Ind.

Tree tanglefoot investigations. Minn.

The caddice worms of lake beds. N.Y. Cornell.

Insects affecting the health of animals. Wyo.

Utilization of bloodworms in the removal of milk waste. N.Y. Cornell.

Insectary work. Minn.

FOODS AND HUMAN NUTRITION.

Food preservation. (See also Storage studies.)

New methods of packing dried fruits. Calif.

Food preservation. (Cont.)

A study of the maximum water content of dried fruits. Calif.

A survey of the deciduous fruit drying industry of the State. An inquiry into the best localities, varieties, yields, methods, equipment, and costs of producing dried fruit in California both by sun drying and by artificial evaporation. Calif.

A survey of the deciduous fruit drying industry of the State. Calif.

An experimental study of equipment for drying and curing of deciduous fruits on a commercial scale. Calif.

Dehydration of fruits and vegetables. (In cooperation with the U. S. Department of Agriculture.) Oreg.

Economical drying of wine and table grapes. Calif.

Use of containers for packing dried prunes. (In cooperation with the U. S. Department of Agriculture) Oreg.

Drying vegetables.--To devise methods of preserving vegetables without the use of cans and jars, adapted to use on a small scale. Calif.

Canning of Oregon grown apples. (In cooperation with the U. S. Department of Agriculture) Oreg.

Canning dried Italian prunes. (In cooperation with the U. S. Department of Agriculture) Oreg.

Canning investigations in the light of normal and resistant organisms in continuous, fractional, and pressure methods of sterilization. Mass.

Micro-organisms of the canning industry: (a) To determine the organisms more frequently associated with the deterioration of canned products, (b) the thermal death point of these organisms, (c) the relationship existing between the hydrogen ion concentration and the thermal death point in order to determine the most favorable composition of all materials for canning. Iowa.

Heat resisting bacteria of fresh and canned vegetables and their relation to spoilage. Colo.

Investigation concerning methods of preservation of Hawaiian grown food products. Development of practical home and factory methods of canning, preserving, drying, and pickling of various Hawaiian grown vegetables, fruits, and other food crops, especially bananas, avocados, taro, edible canna, sweet potatoes, papaya and pineapples. Hawaii.

Food preservation. (Cont.)

Slaughter and curing of meats.--To determine the most profitable way of disposing of hogs. Also the shrinkage in curing. Md.

Egg preserving. Mont.

The testing of various methods of preserving eggs, various egg preservatives, and the keeping qualities of different grades of eggs. N.Y. Cornell.

Human nutrition.

Nutritional studies of imported beans from the orient. Calif.

Nutrition of infants. Utah.

Studies regarding the nutritive value of milk, its suitability for food for children and animals, conditions which affect its nutritive value, tolerance and related questions. Vt.

Milling and baking. (See subhead under Wheat.)

Storage studies.

Changes taking place in corn and cornmeal when stored under different conditions. Ky.

Grain storage investigations. Factors influencing the respiration of shelled corn. Minn.

Effect of various storage conditions on the quality and seed value of root crops, with special reference to potatoes. Md.

Fruit storage. Wash.

Physiological aspects of fruit storage. Md.

Storage of fruits at low temperatures for preserving, canning, and soda fountain use. Calif.

The cold storage of certain semi-tropical fruits. Calif.

A demonstration and study of the effect of degree or stage of ripeness of fruit at picking upon its behavior in cold storage. Calif.

Fundamental studies upon metabolic activities of fruits with special reference to their ripening and keeping in cold storage. Calif.

Storage studies. (Cont.)

Factors involved in the cold storage of fruits. N.Y. Cornell.

A study of the factors involved in the ripening of fruit, particularly apples, during storage. Idaho.

Cold storage for Iowa apples. Iowa.

Respiration of apples in relation to their keeping quality. A study of the respiring quotient of apples at common-storage and cold-storage temperatures. N.Y. Cornell.

The keeping qualities of apples in cold storage as affected by the health and vigor of the trees. A study of the conditions which favor and oppose the internal browning of the Yellow Newtown when grown under Pajaro Valley conditions. Calif.

Storage tests with vegetables.--To determine best storage varieties and proper conditions of storage for various crops. N.Dak.

Miscellaneous.

Food definitions and standards. Conn. State.

Studies in fuel consumption in the preparation of meals by use of certain types of cookers. Ind.

A study of diabetic foods. Conn. State.

Methods of preparing various fruit juices, especially on carbonated beverages. Calif.

Unfermented orange juice. A study of methods of preventing deterioration in flavor. Calif.

A study of the nutritive properties of raisins and raisin by-products. Pa.

Studies in jelly making. Calif.

The cooking quality of Colorado potatoes. Colo.

Potato investigations. Potato cooking trial. Oreg.

Investigation of sauerkraut production. Wis.

Physical composition of beef. Mo.

Raising rabbits on large scale in warrens. Minn.

Rabbit feeding for meat production. Mont.

Miscellaneous. (Cont.)

Belgian hares as an economical food. Observations on cost, feeding, comparative fecundity, comparative gains in weight, diseases, inoculations, fur, tanning, breeding, castration, proportion of sexes in young, runs, hutch building, nest boxes, and marketing. Minn.

FEEDING STUFFS AND ANIMAL NUTRITION

Animal nutrition. (See also Vitamin studies.)

Digestion experiments. Mass.

Effect of organic nutrients from single v. mixed plant sources on the growth and reproduction of animals. Wis.

Studies of the factors necessary in the maintenance of mammals. Wis.

Study of factors influencing the normal rate of growth in domestic animals and the permanency of the effects of arrested development. Mo.

Influence of specific natural foods, especially straws and certain grasses, on reproduction in herbivora. Wis.

Attempt to ascertain the use made of food by steers at different ages and in different conditions. Mo.

The effect of age and quality as factors in the feeding of cattle. Ariz.

Study of basal metabolism with cattle and sheep during various stages of development, including: (a) Pregnancy or foetal growth, (b) first year's growth after birth, (c) second year's growth after birth. N.H.

Relation of feed consumed to protein and energy retained in the carcass. Mo.

Metabolism in dairy cows. Pa.

Food requirements of growing dairy cattle. Nebr.

Food requirement for growing dairy cattle. Minn.

Effects of high and low protein in rations on milk production, metabolism, and growth of animals. Va.

Relative utilization of energy in milk production and in fattening. Pa.
Inst. Anim. Nutr.

Animal nutrition. (Cont.)

Factors influencing the percentage and quantity of the fat in the milk of cows on official test, including: (a) The effect of the temperature on the percentage of fat in milk and on metabolism, (b) feed reduction - 50 per cent for three days, (c) influence of the advance of lactation on the percentage of fat in cow's milk, (d) influence of season of year on the percentage of fat in cow's milk, and (e) the variation of fat in successive fractions of a milking. Mo.

Specific nutritional effects of rations upon swine and sheep. Iowa.

The effect of mineral and organic acids upon the metabolism and growth of swine. Iowa.

The effect of fixed alkali and carbonate on the growth and well-being of swine. Iowa.

The effect of calcium, protein, and phosphorus fed to pregnant swine and sheep upon the size, vigor, bone, coat, and condition of the offspring. Iowa.

The influence of sulphur upon the development of swine, with special reference to the hair growth. Iowa.

The effect of iodine fed pregnant ewes (or sows) upon the size, vigor, bone, coat, and condition of the offspring. Iowa.

Studies on digestion of feeds [with poultry]. N.Y. Cornell.

Metabolism and catabolism in the chicken. Ky.

Nutritive requirements of growing chicks. A study of the essentials of a ration for baby chicks. Nebr.

Effect of organic nutrients from various sources on the growth and reproduction of poultry, with especial emphasis on a study of "leg weakness". Wis.

Deficiencies of feed fed hens as affecting the vitality of chicks. A study of the effect of feeds deficient in one or more essential factors, i.e., ash, protein, fat-soluble A and fat-soluble B vitamins, fed laying hens on the vitality of the chicks. Kans.

Feeding stuffs, composition and nutritive value.

Investigation of the nutritive value of feeds. Studies of: (a) The productive values, (b) the proximate composition, and (c) the digestibility of the proximate constituents of feeding stuffs. Tex.

An investigation of the nutritive value of the forage of California stock ranges. Calif.

Feeding stuffs, composition and nutritive value. (Cont.)

The nutritive value of the proteins of feeding stuffs, and biological values of the various proteins. Ill.

The combination of feeding stuffs to get protein mixtures of high quality. A study of the relative growth-promoting value of the protein of various feeds, singly and in combination, to establish mixtures of high quality. N.Y. Cornell.

The constitution, metabolism, and physiological effect of certain phosphorus bodies found in feeding stuffs, N.Y. State.

A determination of the biologic value of the proteins of peanuts, soy beans, and coconut (copra). Okla.

The nutritive value of wheat and wheat products. Ky.

Nutrients in forage crops. Chemical contents of forage crops, particularly hydrocyanic acid in Sudan grass. Kans.

Determining the digestibility and metabolizable energy in feeds for horses. Mass.

Digestion experiments with poultry.--To determine the percentage of the various organic nutrients that are digestible in our southern poultry feeds. N.C.

The nutritive deficiencies of barley as a feed for young growing pigs. N.Dak.

The digestibility and nutritive value of Pinto beans and Pinto bean straw, and their use as a feed for cattle. N.Mex.

Composition and comparative digestibility of oat hulls and oat hulls treated with sulphuric acid. Iowa.

Attempts to improve the nutritive value of grain hulls, especially oat hulls. Mass.

The digestibility of corn preparations. Iowa.

Yellow v. white corn for stock feeding. Wis.

Effect of cottonseed meal on cows and heifers in reproduction.--To determine the effects of various quantities of cottonseed meal on the reproductive organs of beef and dairy females when fed and handled under various conditions. N.C.

Relative value of cottonseed meal and velvet beans. Miss.

Peanut studies. The nutritive value of the peanut when fed as: (a) The raw peanut without hulls, but with sheath, (b) the roasted peanut without hulls, but with sheath, (c) the peanut meal without hulls, (d) the peanut meal bread without the addition of wheat flour. N.C.

Feeding stuffs, composition and nutritive value. (Cont.)

Digestion trials with prairie hay.--To determine the nutritive value of different grades of hay from: (a) Dried grass exposed to the weather through the winter and cut in April, (b) grass cut at the height of the growing season, and (c) mature grass cut at the end of the growing season. N.Dak.

A study of the dietary value of wild rice. Minn.

Feeding value of sunflowers according to maturity of the plant. Mont.

A biological study of the nutritive value of the velvet bean, with special reference to its amino acid deficiencies and its content of fat-soluble vitamin, water-soluble vitamins, and minerals. Ark.

The chemical analysis of forage crops and feeding stuffs. Wyo.

Mineral metabolism.

Mineral metabolism and mineral requirements of animals. Wis..

Calcium chlorid as a mineral supplement. Its use in cottonseed meal. Ark.

Mineral requirements for growth of dairy cattle and their bearing on the future milk production. Minn.

The calcium balance of dairy cows. Iowa.

Calcium requirements of chickens. Wis.

Mineral nutritional studies with poultry.--To determine the amount of each mineral element necessary for best results in growth, development, and in egg production. N.C.

Protein requirements and metabolism.

Protein requirements for growing cattle. Nebr.

High and low protein requirements for growing animals. Md.

Experiments on the protein requirements for growing cattle.--To determine the optimum protein requirement for the growth of cattle without material fattening. N.Dak.

Influence of nutrition of heifers and the age of breeding upon their subsequent development. Protein requirements for growth. Mo.

Protein storage in protoplasmic tissue. Work on the amino acids in the globulins and albumins of beef flesh in fat and very thin cattle. Mo.

Protein requirements and metabolism. (Cont.)

Protein from skim milk v. protein from oil meal and peanut meal for the growth of cattle. S.Dak.

Efficiency of various protein mixtures for growth in swine and milk production in dairy cows. Wis.

Determination of the protein and energy requirements for milk production. Va.

Protein metabolism studies with pigs. Ark.

Silage. (For silage feeding experiments see under various Animal husbandry headings.)

Silage investigation. Ark.

Forage crop investigations. Silage making methods. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.) Oreg.

Methods of silage production at Churchville and Alfred, N.Y. N.Y. Cornell.

Silage studies: Changes and losses incident to fermentation. Ohio.

Microorganisms in silage and their pathological significance. Minn.

The micro-flora of moldy silage. Minn.

Silage feeding tests. (Northeast Demonstration Farm, Duluth) Minn.

The comparative feeding values of different kinds of silage.--To obtain data on the relative feeding values of silages made from different crops and the relative feed values of the crops per acre. N.Dak.

Silage investigations. Chemical and feeding tests of silages made from kafir stover, kafir fodder, cane stover, cane fodder, corn stover, and corn fodder. Kans.

New varieties of silage. Palatability tests on the following silages: wheat, horse beans, mesquite, wild cucumber, dog fennel, China lettuce, Eureka clover, Tangier peas, Hungarian vetch, mustard, tar weed, goat weed, Canada thistle, and more thorough tests with ear corn silage for pigs. Oreg.

Silage from large Virginia corn v. common field corn. Ohio.

Investigations of the relative values of normal corn silage v. corn stover silage and the relative value of corn in silage v. corn fed as shelled corn. Mich.

Silage.--To determine the value of sunflower silage as a feed for farm animals. N.Dak.

Silage and silage feeding. (Cont.)

Factors causing poor quality in sunflower silage in the lower Yellowstone Valley. Mont.

The composition and properties of silage prepared from the grain sorghum. Okla.

Vitamin studies. (See also Animal Nutrition.)

A study of some fundamental facts of nutrition with special reference to the nutritive function and relative nutritive value of the individual proteins and of the vitamins. Conn. State.

Studies regarding the functions of vitamins in the animal body. Minn.

Use of yeasts to further our knowledge of growth-promoting substances, or vitamins. Wis.

Studies in the quantitative requirements of laboratory animals for vitamins A and B. Yeast as a source of vitamin B for growth and reproduction of rats. Minn.

Studies of the chemical nature of vitamins A and B. Minn.

The relation between work and the requirements of animals for vitamins A and B. Ill.

The relative vitamin requirements of various species of animals and the effect of vitamin deficiency. Iowa.

Vitamins as aids in the production of growth with pigs. Mass.

To determine whether the hog stores fat-soluble vitamins A in its body fat. Calif.

Deficiencies of feed fed hens as affecting the vitality of chicks. A study of the effect of feeds deficient in one or more essential factors, i.e., ash, protein, fat-soluble A and fat-soluble B vitamins, fed laying hens on the vitality of the chicks. Kans.

The growth of young chicks as affected by rations deficient in vitamins A and B. Ohio.

Effect of the antineuritic vitamin (accessory food factor B) on egg production and condition of laying hens and pullets. Pa.

The relation of vitamins to the growth of dairy calves. Minn.

Vitamin requirements for growth and milk production of dairy cattle. Minn.

Vitamin studies. (Cont.)

Relation between vitamins in the food eaten and in the milk produced by a lactating mother. Effects of vitamin-deficient rations on the milk produced by cows. Kans.

Studies of "fat-soluble A" vitamin as present in the milk of the four dairy breeds. Nebr.

Factors influencing the vitamin content of milk. Minn.

The influence of commercial condensing processes upon the vitamin content of cows' milk. Pa.

The relation of the vitamin content of the feed to the vitamin content of the milk produced. A study of the relative efficiency of milk produced on vitamin-rich and vitamin-poor rations, the efficiency being measured by growth studies with white rats. N.Y. Cornell.

Factors influencing the stability of vitamins in human and animal foods. Minn.

Sources of vitamin feed; the relation of pigments to animal nutrition; the stability of vitamins and their relation to growth and reproduction. Wis.

The comparative nutritive value of white corn and yellow corn and the requirements of swine for vitamin A. Ill.

The relative efficiency, as determined by biological analysis of the vitamins, proteins, and amino-acid values of certain forage crops for growth and reproduction. Ark.

Protein, mineral, and vitamin deficiencies of certain practical rations. Ark.

To determine whether or not ensiling destroys the vitamins in green feed. Okla.

The deterioration of the vitamin A content of fishmeal and slaughter house products. Ohio.

Study of fat-soluble A content of feeds commonly supplementing corn in feeding hogs. Nebr.

The nutritive quality of cottonseed meal and hulls. Is fat-soluble A present in butter fat from cows fed exclusively on cottonseed meal and hulls? N.C.

A biological study of the nutritive value of the velvet bean, with special reference to its amino acid deficiencies and its content of fat-soluble vitamin, water-soluble vitamins, and minerals. Ark.

The effect of the nutrient medium on the vitamin content of carrots. N.Y. Cornell.

Vitamin studies. (Cont.)

A chemical and biochemical study of the various vitamin preparations now on the market. Conn. State.

ANIMAL HUSBANDRY, GENERAL.

Miscellaneous.

Breeding demonstrations. (Northwest Experiment Station, Crookston) Minn.

Pure bred cattle breeding. (Hettinger Substation) N.Dak.

Age as a factor in animal breeding. Mo.

Multiple births in cattle. Wis.

Cytological studies of the reproductive cells of cattle and sheep with some similar studies on the mule. Idaho.

Physiology of reproduction in cattle, including experiments on feeding organ extracts, the study of freemartin heifers, etc. Me.

Cattle experiments. Physiology of reproduction in cattle, sterility, heat, length of gestation, etc. Me.

Breeding: Effect of cottonseed meal and other highly nitrogenous feeds on breeding stock. Okla.

Effect of arsenic (Fowler's solution) upon the reproductive powers of the individual and its offspring. Ill.

The grading up of South Mississippi native cattle by the use of pure bred sires. (In cooperation with the Bureau of Animal Industry, U.S.D.A.) (Coastal Plains Substation) Miss.

Pasture feeding trials. (Northwest Experiment Station, Crookston) Minn.

Live stock estimates in North Carolina. A study of the kinds, numbers, and values of live stock in relation to supply and demand. N.C.

Physiological variations in the temperature of cattle. Minn.

Miscellaneous animal husbandry observations. Mont.

Tanning leather.--To obtain methods for making leather with or without the hair on it, which will be suitable for use by farmers. N.Dak.

AMINAL HUSBANDRY, BEEF CATTLE.

General.

Beef cattle investigations. Ark.

Cooperative beef production. Iowa.

The introduction of pure-bred beef cattle. Ky.

Cattle experiments. Study of the relation of one lactation to another in the dairy and beef breeds of cattle. Me.

Sex type as related to functional development in shorthorn cattle. Studies of the relation of form to quantity of milk and character of calves. Kans.

Maintenance of beef breeding cows. Pa.

Maintenance of a pure-bred beef breeding herd. (Fort Lewis Substation) Colo.

The maintenance of a beef cattle breeding herd with silage made from the stover of shocked corn as the basis of the winter ration and sweet clover pasture as the basis for summer maintenance. Ill.

Limited rations in development of range bulls. Oreg.

Effect of cottonseed meal on cows and heifers in reproduction.--To determine the effects of various quantities of cottonseed meal on the reproductive organs of beef and dairy females when fed and handled under various conditions. N.C.

Cattle experiments. The normal growth of dairy and beef cattle as a whole and of certain parts. Me.

Cattle experiments. The determination of the growth curves of dairy and beef cattle. Me.

Dressed beef record. Yield, color, conformation, and grade of dressed beef. (Union Substation) Oreg.

Dressed beef record. Shrinkage in live weight during shipment. (Union Substation) Oreg.

Beef production investigations.--To secure information covering the organization and operation of cattle production as a separate farm enterprise, and its relation to the farm business as a whole. Ill.

Breeding.

Experimental analysis of the heredity factors determining milk and meat production in cattle. Wis.

Cattle breeding for beef.--To ascertain if good cattle could be reared on native pasture. (Kodiak Substation) Alaska.

Age of breeding range cattle. A study of the influence of age of breeding upon the development of dam and offspring in beef cattle. (Fort Hays Substation) Kans.

Influence of breeding upon quality of production in meat animals. Ark.

Beef improvement from scrub stock by use of pure bred sires. Ark.

Beef cattle. Building up a grade herd from native stock and pure bred Angus, Hereford, and Shorthorn bulls. Miss.

Placing of pure bred bulls over the State. Md.

Breeding dual purpose cattle.--To test adaptability of milking shorthorns to that section of the country. (Matanuska Substation) Alaska.

The breeding ability of bulls. Wash.

The development of better cattle in the sandy region of southeastern North Dakota. (McLeod Demonstration Farm) N.Dak.

Cattle breeding.--To improve the breed of cattle found in Porto Rico. P.R.

Yak breeding (subject to procuring breeding stock).--To produce a race of cattle that shall be as hardy as the moose. (Fairbanks Substation) Alaska.

Influence of feed, environment, and breeding on native unimproved cows, and their offspring, as regards development of milk-producing qualities, composition of milk, digestive capacity, and utilization of feed in dairy and beef production. Iowa.

Cost studies, production, finishing, maintenance. (See Rural economics, cost of production.)

Feeding experiments, general. (See also Feeding Stuffs and Animal Nutrition.)

Steer feeding investigations. (Caldwell Substation) Idaho., Ky.

Rations for fattening steers. Pa.

A comparison of important beef cattle feeds. S.C.

Feeding experiments, general. (Cont.)

Fattening range cows and calves on different rations. Ariz.

Fattening cattle: Comparison of roughages. Iowa.

Steer feeding.--To find the combination of feeds best suited to the fattening of steers under western conditions where alfalfa is plentiful and corn is high in price. Utah.

The use of native grown feeds for wintering beef animals. (In cooperation with the Bureau of Animal Industry, U.S.D.A.) (Coastal Plains Substation) Miss.

Winter feeding experiments with range cattle. Trials of various rations of western Kansas-grown feeds. (Fort Hays Substation) Kans.

Wintering beef cattle in western North Carolina.--To determine the cost of wintering cattle and the residual effects of the various methods of wintering. (Springdale Substation) N.C.

Beef production. Study of winter feeding of beef steers. Mont.

Wintering beef cows. Ohio.

Growing beef cattle. Wintering beef cows.--To determine the best rations and the cost of keeping breeding cows. W. Va.

Feeding beef cattle.--To determine the most profitable ration for wintering two-year-old steers when they are to be fattened on grass the following summer. W. Va.

Native feeds for wintering calves. Wyo.

Fattening cattle.--To ascertain the effect of age upon the rate and economy of gain in cattle. Nebr.

Steer feeding. W. Va.

Fattening steers for market.--To determine the feed requirements per pound of gain in fattening two-year-old steers for market when using several rations commonly available in Minnesota; to determine the cost of fattening steers for market when using several rations commonly available in Minnesota during the winter of 1920-21; to determine the efficiency of barley as compared to corn when used as the principal grain in fattening steers for market; to determine the effect upon the rate of gain, economy of gain, selling price and consequent profit by omitting silage only, linseed meal only, corn only, and silage and linseed meal both from the standard fattening ration of corn, linseed meal, silage, and clover hay. Minn.

Feeding experiments, general. (Cont.)

Short feeding cattle.--To study the economy of carrying grass cattle beyond the grass fat condition. To determine the gain possible with bunk or rack feeding in the open yard with corn fodder and ensilage, respectively. To learn the feasibility of sheltering such cattle in a straw shed. To study the feeding and feed value of sunflower ensilage and sweet clover ensilage. To determine the effect of a light grain supplement to ensilage rations. N.Dak.

Fattening cattle.--To ascertain: (a) The advisability of adding ensilage to a corn and alfalfa ration; (b) the advisability of adding alfalfa molasses meal to a corn, alfalfa, and ensilage ration, (c) the effect of adding oil meal instead of molasses meal to the same ration, (d) of fattening cattle without corn, feeding oil meal with corn ensilage and alfalfa hay. Nebr.

The feeding of dry-farm crops to range steers in eastern New Mexico.--To determine whether it is more profitable to market the grains grown in those sections through live stock than it is by selling both grain and cattle. N.Mex.

Cattle feeding tests.--To determine the value for cattle feeding of certain locally adapted feeds and pasture crops. Guam.

Beef cattle feeding over the State.--To observe methods and secure feeding and weight data. Md.

Alfalfa hay alone as a ration for beef cows. Ariz.

Fattening steers. Alfalfa hay alone, hay with silage, hay, silage, and grain, and hay and silage for 75 and 120 days, finishing on hay and grain. (Union Substation) Oreg.

Ration experiments with steers: (a) To determine the value of an acre of beet tops; (b) to compare three ways of utilizing tops as a cattle feed--(1) pastured in the field, (2) dried and hauled to the lot, (3) fed as beet top silage; (c) to determine the comparative effect of feeding beet tops v. wet pulp with alfalfa in a preliminary test with cattle; (d) to compare wet pulp, beet top silage, and corn silage when fed with alfalfa hay; (e) to compare dried molasses beet pulp with wet beet pulp and molasses when fed with cottonseed cake and alfalfa; (f) to find a satisfactory ration for feeding beet top silage; (g) to compare wet pulp and corn silage; (h) to determine an economical utilization of dried molasses beet pulp. Colo.

Steer feeding, using corn silage as roughage, together with concentrates. Va.

Silage feeding investigations. Methods of securing maximum utilization of silage in beef cattle feeding; studies of salt consumption of cattle fed silage in comparison with that of cattle fed alfalfa hay. Kans.

The growing and use of silage other than corn in the feeding of beef cattle and sheep. Idaho.

Feeding experiments, general. (Cont.)

Feeding sunflower silage to cattle. S.Dak.

Fattening beet cattle. Silage v. no silage in the ration. Ohio.

Supplementing the permanent pasture for fattening steers. Ala.

Value of legume hays and straws for production of beef. Wash.

Growing steers: (a) Straw with cotton seed cake, (b) alfalfa hay with corn, peas and barley, and sunflower silage, (c) alfalfa hay, full, medium, and light feeds, (d) alfalfa hay and silage, medium feed. Oreg.

Fattening cattle. Grain allowance. Iowa.

Fattening beef cattle. Grain allowance. Ohio.

Fattening cattle. Relative value of protein supplements. Iowa.

Limited grain rations for fattening cattle of different ages. Mo.

Fattening steers.--To secure data on the feeding of limited grain rations to fattening steers. To study the value of corn and soy bean silage as compared with corn silage, and the value of the soy bean in the silage as a substitute for cottonseed meal as a source of protein supply for fattening steers. Ind.

Fattening cattle. Corn substitutes. Iowa.

Steer-feeding experiments. All lots receiving cottonseed meal with varying amounts of corn and different roughages. Miss.

Feeding experiments with velvet bean feed with cows and calves. Ky.

Velvet beans v. cottonseed meal for fattening steers, when fed in three different forms - dry, soaked, and ground. Ala.

Smutted corn silage for pregnant cows. S.Dak.

A comparison of calves with yearlings when fed balanced rations, and a comparison of two rations for fattening calves of different quality. Ariz.

Fattening beef cattle. Self-feeding calves, yearlings, and 2-year olds. Ohio.

Fattening beef cattle. Yearlings v. 2-year olds. Ohio.

Growing beef cattle. Growing steer calves.--To study the effect of wintering beef-bred steer calves on different rations upon their subsequent gain on pasture. W.Va.

Feeding experiments, general. (Cont.)

Baby beef investigation. Minn.

Finishing baby beef. Okla.

Growing beef cattle. Baby beef.--To make a study of the production and finishing of baby beeves under West Virginia conditions. W.Va.

Baby beef growing and fattening. Free choice calf feeding. Iowa.

Sunflower silage for baby beef. Feeding calves over the winter on different rations, with sunflowers. Mont.

Beef production. Corn v. barley, kafir, and darso in the production of baby beef. Okla.

Grazing and range experiments.

Grazing studies. Idaho.

Range cattle experiment. Calif.

Pasture gains of young stock. (Northeast Demonstration Farm, Duluth) Minn.

Cattle grazing trial.--To determine the carrying capacity and the effect of sweet clover pasture on cattle. N.Dak.

Range management in relation to poisonous range plants. Nev.

The effects of peanuts in a beef-cattle ration on the quality of beef. Ga.

ANIMAL HUSBANDRY, SHEEP AND GOATS.

General.

Sheep experiments. (In cooperation with the Bureau of Animal Industry, U.S.D.A.) (Coastal Plains Substation) Miss.

Sheep flock maintenance. (Northwest Experiment Station, Crookston) Minn.

Farm sheep management. (Caldwell and Sandpoint Substations) Idaho.

Management of range sheep. Mont.

To determine the practicability of producing sheep profitably under range conditions in western North Carolina. (Spruce Pine Substation) N.C.

Sheep production.--To find out the value of sheep to the farming system of this region. (Sandpoint Substation) Idaho.

General. (Cont.)

An economic study of shearing sheep once v. twice a year. Tex.

Salt mixtures for sheep. An attempt to arrange some mixture of salts which, if kept before sheep at all times, may take the place of drenching for ridding sheep of worms. N.Y. Cornell.

Breeds and breeding.

Sheep breeding experiments. Ky.

Breeding experiments with sheep. S.Dak.

Sheep breeding.--To determine the principles involved in fixing certain characters in sheep. N.H.

Sheep breeding experiments to build up a flock of high class grades from native and grade ewes, using pure bred Shropshire and Southdown rams. Miss.

A study of cross-breeding Merino ewes with mutton rams. Pa.

Sheep breeding. Production of a hardy breed suited to the coast region. (Kodiak Substation) Alaska.

A study of the adaptation of the Corriedale sheep to southwestern Texas. (In cooperation with the Bureau of Animal Industry, U.S.D.A.) (Sonora Substation) Tex.

The use of pure-bred rams. Okla.

Breeding ewe lambs.--To determine the effect on mother and offspring of breeding ewe lambs so that they drop their first lambs at 14 or 15 months of age. N.Dak.

Tests with different breeds of sheep. S.C.

Breeding sheep for wool production. Wyo.

Establishing a breed of sheep for winter lambing and a study of inheritance of characters. Okla.

Inheritance of the fur qualities of Carakul sheep. Tex.

Ewes, feeding and maintenance.

Studies in sheep production. Feeding breeding ewes. Mont.

Winter maintenance of breeding ewes. Colo.

Wintering ewes. Wool and lamb record. (Union Substation) Oreg.

Wintering pregnant ewes. Iowa.

Ewes, feeding and maintenance. (Cont.)

Wintering ewes: (a) Alfalfa hay alone, (b) alfalfa hay with corn, peas and barley, and sunflower silage. Oreg.

Roughages in winter relations for breeding ewes. Ohio.

The value of legume hays and straws for wintering the breeding flock. Wash.

"Sheeping-down" corn. Iowa.

Corn v. oats for breeding ewes. Ohio.

Feeding cottenseed to pregnant ewes. Ariz.

Maintenance ration for breeding flocks of mutton and wool sheep. Pa.

Methods and cost of maintaining breeding ewes and producing lambs.--To determine the possibility of producing sheep profitably under Piedmont North Carolina conditions. N.C.

Feeding experiments with sheep. Trials of rations made up from western Kansas-grown feeds. (Fort Hays Substation) Kans.

Feeding and grazing investigations with sheep. (Upper Peninsular Substation) Mich.

Sheep grazing trial: Sweet clover and brome grass. To test sweet clover and brome grass as a pasture for sheep. N.Dak.

Pasturage and silage production for sheep. Study of various mixtures of grasses and clovers; of the effect of grazing upon cultivated grasses under controlled conditions; and of the most desirable methods of planting and irrigating Russian sunflowers. Nev.

The growing and use of silage other than corn in the feeding of beef cattle and sheep. Idaho.

Feeding and finishing range ewes and lambs: (a) Feeding old ewes, (b) pasturing lambs before shipment in the autumn. Nev.

Lambs, feeding and fattening.

Lamb feeding investigations. (Caldwell Substation) Idaho.

Lamb feeding experiments. Fattening lambs. (Scottsbluff Substation) Nebr.

Fattening lambs. Okla.

Lambs, feeding and fattening. (Cont.)

Rations for fattening lambs. Colo.

Feeding western lambs. Tests of various rations for finishing. Kans.

Fattening lambs in the dry lot. Comparison of roughages. Iowa.

Fattening lambs: (a) Alfalfa hay and barley, (b) alfalfa hay with corn, peas and barley, and sunflower silage and barley. (Union Substation) Oreg.

Value of legume hays and straws for fattening lambs. Wash.

Rations for fattening lambs.--To ascertain the advisability: (a) Of adding ensilage to a corn and alfalfa ration, (b) of feeding molasses meal both with and without ensilage, (c) of feeding oil meal both with and without ensilage. Nebr.

Fattening range lambs in the dry lot. Fattening range lambs upon different corn preparations. Iowa.

Fattening western lambs:-- (a) To compare hand feeding with self feeding of concentrates for fattening lambs, (b) to secure information as to the value of soy bean oil meal and soy beans with a mineral mixture as supplement to rations for fattening lambs, (c) to secure the comparative value of ear corn and shelled corn for fattening lambs, (d) to secure the comparative value of corn stover for fattening lambs. Ind.

Fattening lambs on standing corn.--To determine the feasibility of fattening lambs on corn in the field. N.Dak.

Fattening range lambs in the dry lot. Supplements to corn. Iowa.

A study of the comparative gain and economy of gain made by lambs fattened on the grain sorghums v. corn. (Spur Substation) Tex.

Fattening lambs in the dry lot. Corn substitutes for fattening range lambs. Iowa.

Linseed meal v. cottonseed meal v. gluten feed for fattening lambs. Wis.

Lamb feeding experiments. A comparison of cull and good feeders by gains, length of feeding periods, and the difference in margins of profit per hundred weight. N.Mex.

Pasture yields for lambs. Oreg.

To determine the cost in feed and pasture of raising spring lambs and the relative values of the different types of management. Oreg.

Amount of corn for lambs in rape pasture. Ohio.

Lambs, feeding and fattening. (Cont.)

Lamb production: Methods of producing more and better lambs in Nevada range flocks: (a) Use of better bucks, (b) saving bummer lambs, (c) feeding concentrates to ewe bands in winter on the open range, (d) feeding ewes which lamb under shelter to secure a richer and more abundant milk supply. Nev.

Comparison of types of lambs and systems of production. Ohio.

Comparative method of docking and castrating lambs. Pa.

Wool.

A study of the inheritance of wool production. Ohio.

Effect of various factors upon the wool and form of the sheep. Mont.

Alkali and weathering studies with wool. Wyo.

Wool investigations. The regain of unwashed wool. Wyo.

Grades and shrinkages of representative samples of Texas wool and mohair. Tex.

Determination of the relation of skin folds to weight of fleece on Rambouillet sheep. Tex.

Goats.

Inheritance of horns and wattles in Toggenburg goats. Tex.

Goat breeding.--To encourage the breeding of improved milch goats. To ascertain the degree of hardiness possessed by the different crosses. Guam.

Milch goat improvement.--To determine the milk-producing capacity of the native goat and the improvement that may be expected by the use of pure bred bucks from a milk breed such as the Toggenburg. Records of the cost of producing milk will also be kept. N.Mex.

Breeding Toggenburg goats (subject to procuring pure bred stock.)--To see if goats will thrive and adapt themselves to Alaska conditions. (Fairbanks Substation) Alaska.

Goat feeding tests.--To determine the most desirable feeds and feeding methods in connection with the production of pure bred and grade milch goats. Guam.

Type and inheritance in Angora goats. Tex.

ANIMAL HUSBANDRY, SWINE

General.

Physiological effect of heterozygosis in swine. Iowa.

Value of different types of pigs for market production. Ill.

Test type with swine. Carcass studies covering killing, dressing, color, shrinkages, yields, cutting and yields, measuring, curing, and related data. Iowa.

Methods of growing pigs. Pa.

Hog raising: (a) To show how best to handle hogs; (b) to breed pure-bred stock for sale as farm demonstration work. (Fairbanks Substation) Alaska.

Pork production.--To determine the cost of carrying a pure-bred herd under average farm conditions. (Edgecombe Substation) N.C.

Experiments with hogs on irrigated land. (Huntley Substation) Mont.

To determine the condition and profits in producing pork by the suburban residents in the backyard. Md.

Breeds and types, breeding.

Heredity studies with swine. Iowa.

Breeding pure-bred swine. Wyo.

Studies on different breeding systems with swine. Inbreeding v. outbreeding. Iowa.

Hog improvement from scrubs by use of pure bred sires. Ark.

Hogs. Maintaining and improving the herd by the use of good sires. (North Platte Substation) Nebr.

Experiments in the "upgrading" and better management of the types of hog found in the mountain districts of Kentucky. Ky.

Swine breeding experiments.--To note the inadvisability of raising breeding stock from gilts. Md.

Most desirable age to breed gilts. Pa.

Swine breeding.--To encourage the breeding of an improved type of hog; and to determine the degree of hardiness possessed by the progeny of pure-bred Berkshire hogs under Guam conditions; and to evolve a strain of hogs for Guam resulting from different crosses of Berkshires on native hogs for the purpose of attaining maximum hardiness, size, feeding qualities, etc. Guam.

Breeds and types, breeding. (Cont.)

A study of swine types covering growth, feed requirements, visceral development, and carcass production, determining differences existing and causes therefor. Iowa.

Brood sows, maintenance and management.

Maintaining brood sows. Pa.

Maintenance of brood sows. (Northwest Experiment Station, Crookston) Minn.

Maintenance of brood sows. Cost and methods of feeding. Mont.

Wintering brood sows: A study of the influence of feed, exercise, and degree of fatness of sows during pregnancy - also the residual effects of the treatment of the sows during pregnancy upon the growth and development of their litters from farrowing till weaning age. Ind.

Wintering pregnant sows - gilts. Iowa.

Wintering pregnant sows - yearlings or over. Iowa.

Comparison of rations for breeding gilts and comparison of barn v. open shed. Comparison of rations, methods of shelter, and methods of management for wintering brood sows. Wis.

Swine feeding. Economical winter rations for brood sows. (Union Substation) Oreg.

Forage crops for swine. Suckling sows with litters. Iowa.

Dry-lot rations for suckling sows with litters. Iowa.

A study of the effects of velvet beans on pregnant sows. S.C.

Influence of velvet beans alone on secretion of milk in brood sows and on condition of litters Ala.

Legume hays v. tankage as proteid supplements for brood sows. Relative value of various legume hays in cheapening the winter ration. Influence of the use of these on the size and vigor of pigs produced. Ark.

Cost of production. (See Rural economics, Cost of production.)

Feeding, general. (See also Animal nutrition.)

A study of feed requirements for growth and reproduction of swine. Kans.

Feeding, general. (Cont.)

Experiments in feeding pigs. Mass.

Ration experiments with swine. Ark.

Growing pigs to weaning age.--To study the methods of feeding pigs from the time they begin to eat solid food until they are ready to be weaned. Ind.

Rations for pigs at weaning time. Mo.

Feed requirements and cost of gains in the production of spring and fall pigs. Minn.

Study in the economy of producing feeder hogs. (In cooperation with the Bureau of Animal Industry, U.S.D.A.) (Coastal Plains Substation) Miss.

A comparison of home-grown and purchased feedstuffs for economical pork production. Fla.

Swine feeding tests.--To determine the feeding value for swine of certain feeds and pasture crops that may be produced locally. Guam.

Economic utilization of crops for the production of pork. Wash.

The value of alfalfa as a supplement to a diet of corn and tankage and Kafir and tankage, respectively, when fed continuously to three generations of swine. Kans.

Alfalfa as a supplement to concentrates for feeding pigs. Ariz.

Dry-lot rations for swine. Feeding standard studies. Iowa.

Dry-lot rations for spring pigs. Iowa.

Dry-lot rations for fall pigs. Iowa.

Dry-lot rations for swine. Raising orphan pigs. Iowa.

Dry-lot rations for well grown shoats. Iowa.

Dry-lot rations for fairly mature hogs. Iowa.

Dry-lot rations for breeding sows. Fattening for market. Iowa.

Dry-lot rations for swine. Soft ear corn silage feeding. Iowa.

Fattening pigs on dry farm grains. (North Montana Substation) Mont.

Rape as material for silage. Feeding rape silage to swine. Iowa.

Dry-lot rations for swine. Individuality studies. Iowa.

Feeding, general. (Cont.)

Growing pigs in dry lot, in combination with self-feeder, as compared with dry lot in combination with a full grain ration (hand fed). (West Central Branch Station, Morris) Minn.

A comparison of hand feeding and self feeding swine in dry lot. Ohio.

To determine the most profitable way of utilizing the corn crop as a feed for swine. Md.

Suitable rations for fattening hogs.--To compare corn and Indiana grown barley as fattening feeds for hogs: To study methods of feeding barley with tankage and with corn and tankage, the effects of high fiber content in a mixed fattening ration, the effects of high fiber content on the appetite of the hog, and to demonstrate the feeding principle of suitability of feeds for specific purposes. Ind.

Growing and fattening spring pigs for market.--To compare full feeding of grain to hogs in pasture for early fall marketing and growing shoats on pasture followed by full feeding in dry lot; also to compare some principal forage crops for growing shoats and fattening hogs. Ind.

Rations for fattening hogs. Various rations in comparison with corn and tankage in self-feeders. Nebr.

Cane molasses for hogs.--To determine the extent to which the palatability of a ration is increased by the use of molasses in connection with shorts or barley. Oreg.

Beet molasses as feed for young hogs. Cooperative work with packing houses to determine the value of tankage as a winter feed for brood sows and young pigs. Utah.

To determine the value of some uncommon by-product feeds as a feed for swine. Md.

Fiber in rations for fattening swine. Ohio.

Comparison of gains made by pigs and chickens on milk feed. Miss.

Free-choice self-feeders v. hand feeding for maturing pigs to market age. Tex.

Forage crops for hogs: Hogging off.

Forage crops for swine. Developing breeding stock. Iowa.

Forage crops for swine. Summering sows. Iowa.

Method of feeding pigs on forage. Pa.

Forage crops for hogs: Hogging off. (Cont.)

Methods of feeding swine on pasture. Mont.

Pasture feeding experiments with pigs. Mass.

Experiments with hogs on dry land pastures. (Funtley Substation) Mont.

Hog pasture experiment. (Lightfoot Substation) Va.

Hog grazing crops. (North Louisiana Experiment Station, Calhoun) La.

Forage crops for hogs. Mo., W.Va.

Forage crops for growing and fattening swine. Ark.

Forage crops for swine. Growing and fattening pigs. Iowa.

Grazing crops for swine.--To determine the best grazing crops for swine in this section. (Blackland Substation, Wenona) N.C.

Pork production.--To determine the value of grazing crops for this section for swine. (Piedmont Substation, Statesville) N.C.

Hog pasture experiments to find a suitable sequence of grazing crops for hogs and the necessary concentrates to produce fat pork by the end of the grazing season. Va.

Pasturing crops for pigs. Comparison of all available forage crops for the economic pasturing of pigs.--To determine the ages at which pigs can make most use of green forage crops. A study of the quantity of grain to supply to make the most economic use of green forage crops. N.Dak.

Comparison of forage crops for swine and of concentrates and supplements to feed on forage. Wis.

Swine feeding. A comparison of leguminous and non-leguminous forage crops in connection with rolled barley for growing and fattening hogs. (Union Substation) Oreg.

Forage crop experiment with swine on different kinds of pasture and fed varying amounts of grain. Mont.

Hogging-off crops v. dry-lot feeding.--To compare the practice of hogging-off crops in field to feeding in dry lot: To compare the practice of growing protein supplements in the field with corn and the practice of adding protein supplements to corn in the field at the time of hogging-off, and to compare supplements to be used with corn which is hogged-off. Ind.

Irrigation agriculture investigations. Alfalfa pasture test with hogs. (Garden City Substation) Kans.

Forage crops for hogs: Hogging off. (Cont.)

Growing pigs upon alfalfa pasture in combination with a full grain ration (hand fed) as compared with a full grain ration (hand fed) in combination with dry lot. (West Central Branch Station) Minn.

Growing pigs upon alfalfa pasture with self-feeder, as compared with alfalfa pasture in combination with a full grain ration (hand fed), as compared with growing pigs on alfalfa pasture in combination with a reduced grain ration (hand fed). (West Central Branch Station) Minn.

Growing pigs upon alfalfa pasture in combination with self-feeder as compared with dry lot in combination with self-feeder. (West Central Branch Station) Minn.

Hog experiment.--To determine the value of alfalfa, sweet clover, rape, and other pasture crops, when grown singly and in combination for hog pastures. (Edgeley Substation) N.Dak.

Fattening hogs on pasture: (a) To compare clover, alfalfa, and rape as forage crops, (b) to compare full feeding of grain to hogs on pasture for early fall marketing, and growing shoats on pasture followed by full feeding in dry lot, (c) to compare feeding on pasture with feeding in dry lot, and (d) to compare corn and protein supplement with corn alone for feeding hogs on pasture. Ind.

Forage crops for swine. Hogging down corn. Iowa.

Hogging-off corn.--To determine the best size and age of pigs for hogging-off corn and the economy of fattening hogs by this method, and the best variety of corn for the purpose: To learn what proportion of the seasons will sufficiently mature corn for it to be available for hogging-off. N.Dak.

May- compared with March-farrowed pigs in hogging-off corn, and for economic pork production. N.Dak.

Fattening pigs in dry lot on barley v. hogging-off corn.--To determine whether corn can be hogged off to advantage by May-farrowed pigs. N.Dak.

Hogging-off field peas. Idaho.

Hog experiment.--To determine the value per acre of ripe field peas and corn when used for hogging-off crops. (Edgeley Substation) N.Dak.

Grazing peanuts with hogs v. marketing the crop. Ala.

Hog grazing tests with peanuts, soy beans, small grains, alfalfa, and clovers. --To determine the amount of grazing from each and their effect on the quality of the pork. Miss.

Forage crops for swine. Methods of pasturing rape. Iowa.

Forage crops for hogs: Hogging-off. (Cont.)

Comparative tests of rape, crimson clover, burr clover, alfalfa, rye, and barley as winter grazing crops for hogs. S.C.

Grazing soy beans alone with hogs v. soy beans plus self-feeder of tankage. Ala.

Garbage for hogs.

Garbage for swine. Wyo.

Dry-lot rations for swine. Garbage feeding. Iowa.

Garbage for fattening pigs, including garbage alone and with grain, and also slaughter tests. Oreg.

Swine feeding experiments.--To determine if cooked citrus fruit rinds have any poisonous or toxic effects on hogs. Md.

Mineral supplements for hogs.

Minerals for growing, fattening, and breeding hogs. Ill.

Mineral supplements for brood sows. Wis.

Dry lot rations for swine. Mineral or condimental studies. Iowa.

Swine investigations. Amount of mineral necessary for the maximum development of bone in swine. Okla.

Protein supplements for hogs. (For peanuts see Soft pork.)

Protein supplements for pork production. Wash.

Protein supplements for swine. The place of protein supplements of animal origin in the feeding of swine in New York State. N.Y. Cornell.

A comparison of various protein supplements for fattening pigs on concentrates and forage crops. Pa.

Protein supplements for swine.--To determine the relative value of various protein supplements. Ark.

Effect of addition of protein to rations for finishing hogs under practical condition. Kans.

A study of varying planes of protein intake upon growing pigs. Del.

Protein supplements for hogs. (Cont.)

A comparison of protein feeds for pigs. S.C.

Comparison of protein-rich supplements for swine and proportion needed to balance ration. Wis.

Comparison of various grains for fattening hogs. Okla.

Determination of the relative efficiency of Michigan grown grains and combinations thereof for pork production. Mich.

Comparison of corn, kafir, darso, barley, and cane for fattening hogs. Okla.

Feeding hogs - comparing darso, kafir, and corn in fattening hogs by use of the self-feeder. Okla.

A comparison of rations containing corn, wheat middlings, buckwheat middlings, tankage 60 per cent protein and tankage 50 per cent protein, and 10 per cent bone meal for swine. Pa.

Barley for fattening pigs. S.Dak.

Comparison of methods of preparation of barley for hog feed.--To determine the best method of preparing barley by comparing free choice whole and ground, and self fed ground mixed with tankage, and hand fed ground, whole and soaked. Okla.

The nutritive deficiencies of barley as a feed for young growing pigs. N.Dak.

Different protein supplements with barley and corn for fattening hogs. Idaho.

Comparison of protein supplements to barley and corn for swine: skim milk, whey, tankage, linseed meal, and wheat middlings when fed separately and in combination. Wis.

Barley and wheat for pigs when supplemented with tankage. Mont.

The value of buckwheat middlings for feeding growing shotes on pasture. An attempt to see how nearly buckwheat middlings may be safely substituted for wheat middlings in feeding growing shotes on pastures. N.Y. Cornell.

Comparative test of peanuts, sweet potatoes, and corn for pork production. S.C.

Comparative test of soy beans, velvet beans, and corn for pork production. S.C.

Coconut meal as a protein supplement for fattening swine in dry lot. (Davis Substation) Calif.

Coconut meal as a protein supplement.--To determine the value of coconut meal as a protein supplement in fattening hogs and particularly to test its palatability. Oreg.

Protein supplements for hogs. (Cont.)

Comparative values of cottonseed meal, peanut meal, tankage, and wheat shorts as supplements to corn chops, milo chops, and rice bran when fed to swine in fattening rations. Tex.

Yellow corn v. white corn for feeding pigs. (North Platte Substation) Nebr.

The comparative nutritive value of white corn and yellow corn and the requirements of swine for vitamin A. Ill.

Corn and tankage v. corn and fish meal.--To determine whether tankage or fish meal is the best supplement to corn for fattening swine, and to determine if corn in this section can be more profitably marketed through hogs. (Blackland Substation, Wenona) N.C.

Dry-lot hog feeding: (a) Rations of corn and tankage, corn and ground soy beans, and corn and soy bean oil meal, compared with the same rations plus mineral mixture; (b) comparison of mineral mixtures as supplements to a ration of corn and ground soy beans, and (c) comparison of methods of feeding mineral supplements. Ind.

Supplements to corn for feeding swine in dry lot. Ohio.

Supplements to corn for fattening hogs.--To compare the feeding value of some of the most important protein supplements for fattening hogs. Ind.

Study of fat soluble A content of feeds commonly supplementing corn in feeding hogs. Nebr.

Grain sorghums v. corn for fattening swine. Ark.

Protein supplements for kafir for hogs. The relative value of tankage, peanut meal, cottonseed meal, and alfalfa hay, as supplements for kafir grain, when fed to 100-lb. hogs. Okla.

Swine investigations.--To determine the method of preparation of kafir corn for fattening hogs. Okla.

Results of the feeding of rations of milo chops supplemented with tankage and of milo chops supplemented with tankage and pasture. Tex.

A study of rice and rice by-products in swine metabolism. Calif.

Velvet beans for feeder pigs. Ala.

Comparative test of the value of velvet bean meal, peanut meal, and cottonseed meal as protein feeds for hogs. S.C.

Hydrolyzed tannery waste v. tankage as protein feeds for growing swine. Calif.

Protein supplements for hogs. (Cont.)

Swine feeding experiments--To determine the possibility of using fish meal as a source of protein in feeding swine. Md.

Fish meal v. tankage for pigs. Oreg.

To determine if fish meal, when fed with corn to swine, will produce fishy meat. N.C.

Dry-lot rations for swine. Buttermilk and its products. Iowa.

The feeding value of dried buttermilk as compared with tankage in rations for growing and fattening pigs. Tex.

Supplemental feeds for swine. Skim milk, tankage, roots, alfalfa, etc. Mont.

Dry-lot rations for swine. Packing house supplements: Studies of formulas. Iowa.

Self-feeders.

Self-feeders for fattening swine.--To determine their economy and advisability. Ark.

Self feeding pigs. Comparison of hand-feeding and self-feeding methods of growing pigs. Kans.

A comparison of the self-feeder v. hand feeding for young pigs on forage crops. Pa.

Feeding hogs - comparing darso, kafir, and corn in fattening hogs by use of the self-feeder. Okla.

Soft pork, in connection with feeding peanuts, etc.

Soft pork investigations. (In cooperation with the U.S.D.A.) Ky.

A study of the factors influencing production of soft pork. S.C.

Quality of pork from different Arkansas feeds as regards hardness or softness of meat. Ark.

Effect of various feeds upon the quality of the pork product. A comparison of various rations with peanuts. Okla.

Effect of some southern feeds on the properties of lard. Peanut meal with supplementary feeds for hogs. Ala.

Soft pork, in connection with feeding peanuts, etc. (Cont.)

Peanuts as a feed for hogs. Ala.

Peanuts v. peanut meal for hogs. Ala.

The use of peanut meal for fattening hogs. Experiments to determine how much peanut meal could be fed to hogs and still produce a hard pork. Fla.

The relation of peanuts and peanut meal when fed to hogs to softness and other changes in the pork. Ga.

Soft pork studies.--To determine the effect on growth of various amounts of peanuts in a growing basal ration and on body carcass when fed individually N.C.

Soft pork. Grazing on peanuts and soy beans and finishing with corn and tankage. (In cooperation with the Bureau of Animal Industry, U.S.D.A.) Miss.

Soft pork studies.--To determine the effect of feeding varying amounts of oil through peanuts in the ration, of firmness of carcass of growing pigs of different weights, each ration being equal in energy and digestible protein. N.C.

The firmness and relative cost of pork produced by finishing hogs 60 days on peanuts as compared with finishing on grain rations in free choice self-feeders. Tex.

Rice bran and rice polish as causes of soft pork. Tex.

Peanuts for fattening hogs.--To determine length of time necessary to make the hogs soft, then the length of time necessary to make the hogs hard, by killing two pigs out of each lot at intervals of two weeks. N.C.

Soft pork studies.--To determine if the weight of soft pigs is a factor in hardening the carcass. N.C.

Soft pork studies. Curing meat from pigs on various peanut rations to obtain comparative shrinkage. N.C.

Relative shrinkage in curing the various cuts of meat from peanut-fed hogs as compared with those from hogs finished on tankage and corn chops. (In cooperation with the United States Department of Agriculture) Tex.

ANIMAL HUSBANDRY, HORSES AND MULES.

Breeding.

Breeding experiments with horses and mules. S.C.

Breeding. (Cont.)

Horse breeding.--To encourage the breeding of improved horses, and to determine the degree of hardiness possessed by progeny of pure-bred Morgan horses under Guam conditions, and to evolve a strain of horses for Guam resulting from different crosses of Morgans on native mares for the purpose of attaining maximum hardiness, size, feeding qualities, etc. Guam.

Relative efficiency of bred mares for farm work. Mo.

Horse production. Study of the horse as a motor. Iowa.

Mule breeding. Miss.

Cost of production. (See Rural economics, Cost of production.)

Feeding.

Determining the digestibility and metabolizable energy in feeds for horses. Mass.

Horse feeding tests.--To determine the value for horse feeding of certain foods and pasture crops which may be produced locally. Guam.

Maximum hay and minimum grain for the work horse. N.Y. Cornell.

Grain for work horses. N.Y. Cornell.

Barley v. oats for work horses. Wis.

Silage for raising colts. N.Y. Cornell.

Growing draft colts. Mo.

Horse production. A study of preparation of feeds and the value of minerals in raising draft colts. Iowa.

Cost of maintaining brood mares. Miss.

ANIMAL HUSBANDRY, POULTRY.

Breeding.

The inheritance of higher fecundity and the mode of transmission in poultry. Mich.

Inheritance of egg production. Oreg.

Breeding. (Cont.)

Inheritance in egg production. Data on maturity as indicating productive ability, inheritance of size and color of eggs and similar characters. Nebr.

To determine the inheritance of broodiness and its possible connection with the physiology of the reproductive organs and the external stimuli. Mass.

Hybridizing poultry. Reciprocally crossing Barred Plymouth Rocks with other breeds. Experiments bearing on the inheritance of linked characters. Me.

Poultry breeding. Utah.

The breeding of pure bred poultry for high egg production. Ky.

Selection of poultry for vigor. W.Va.

Breeding and selection of single comb White Leghorns. Mont.

Breed improvements. Oreg.

Age as a factor in poultry breeding. Mo.

Inbreeding in poultry. Kans.

Effect of inbreeding poultry. N.Y. Cornell.

Breeding experiments with poultry, to study the effects of selection and inbreeding. N.Y. State.

Studies on inbreeding with Rhode Island Red fowls. Effects of inbreeding on fowls. Wis.

Effect of close inbreeding on egg production and on fertility and hatchability of eggs. Oreg.

Relative influence of sire and dam on the offspring. Oreg.

The relative influence of the sire and dam in breeding and mating for high production. N.J.

Breeding studies with single comb White Leghorns and Rhode Island Reds and Barred Plymouth Rocks, and facts or physical signs which indicate egg production.--To determine the influence of the male as transmitting the factor of high egg production, influence of the female as transmitting powers of high egg production. Physical signs of high egg production. N.C.

Breeding. (cont.)

Breeding for egg production. Effect of breeding and selection in increasing egg production through the year. Mont.

Developing a high producing flock from common hens. Ark.

Poultry breeding experiments.--To increase egg yield, uniformity of eggs, prepotency of egg production, and breed characteristics. N.Mex.

The development of a high producing strain of single comb White Leghorns. N.J.

Breeding single comb White Leghorns and Barred Plymouth Rocks for egg production.--To improve egg production by breeding and to observe physical characteristics which indicate high egg production. Ind.

Improvement of mongrel flocks through selected standard-bred cockerels. A study of the feasibility of improving mongrel flocks through the use of standard-bred cockerels of White Wyandotte, Rhode Island Red, and White Orpington varieties. Kans.

Adult flock studies.--To study the methods of building up a highly efficient farm flock in the Coastal Plains climate. (Coastal Plains Substation, Wil-lard) N.C.

Breeding, culling, and selecting poultry.--To develop heavy laying strains of standard-bred poultry and maintain breed quality. N.Dak.

Egg production. The best layers in the egg laying contests to be used as breeding stock for the development of better laying strains of standard varieties of poultry. Nebr.

Chicken breeding.--To encourage the breeding of improved breeds and varieties of chickens; the determination of the adaptability of various breeds and the development of certain desirable crosses. Guam.

A comparison of breeds as to their efficiency as egg producers. Miss.

A comparison of various breeds of poultry when kept for profit under uniform conditions of feed and care. (North Central Branch Station, Grand Rapids) Minn.

Standard bred v. mongrel flock. (Northwest Experiment Station, Crookston) Minn.

Chicks, brooding and feeding.

Nutritive requirements of growing chicks. A study of the essentials of a ration for baby chicks. Nebr.

Chicks, brooding and feeding. (Cont.)

Rations for starting chicks. Iowa.

Milk products in baby chick feeding. N.J.

Comparison of gains made by pigs and chickens on milk feed. Miss.

Effect of skimmed milk on growing chicks. Miss.

The value of sour skim milk and beef scraps in rations for growing chicks. Mo.

Chick feeding.--To determine the relative feeding value of liquid, semi-solid, and dried buttermilk to growing chickens. Ind.

Poultry management. Hydrolyzed sawdust as chicken food. Me.

Calcium requirements of chickens. Wis.

Influence of quantity and proportions of the mineral elements, in an otherwise unvarying ration, on growth and development of the chicken. Wis.

The growth of young chicks as affected by rations deficient in vitamins A and B. Ohio.

Deficiencies of feeds fed hens as affecting the vitality of chicks. Studies of the effects of feeding supposedly deficient and supposedly adequate rations. Kans.

Deficiencies of feed fed hens as affecting the vitality of chicks. A study of the effect of feeds deficient in one or more essential factors, i.e., ash, protein, fat-soluble A and fat-soluble B vitamins, fed laying hens on the vitality of the chicks. Kans.

A study of the influence of certain physical qualities of eggs on the fertility, hatching power, size, and rate of growth of chicks. Nebr.

Brooding tests.--To determine the cost and advantages of brooding by different artificial and the natural systems. N.Mex.

Poultry management. Tests of the more successful of the coal stove brooders with the view of determining the most efficient. To secure data on the most successful management to be followed for the long continuation of a poultry plant. Me.

Raising chicks in confinement.--To determine a ration and method of feeding and care of young chicks which will permit the normal growth in confinement without the heavy mortality usually experienced at the age of 6 to 12 weeks. Ind.

Cost of production. (See Rural economics, cost of production.)

Egg laying contests, exhibitions, and routine records.

Improvement of poultry through the establishment of egg laying contests and breed testing stations. N.J. .

Improvement of poultry through the organization, aid, and superintendence of poultry exhibits including provision for instruction in poultry raising, and to offer premiums for excellence in quality of birds exhibited at such exhibitions. N.J.

Arkansas State egg laying contest. Ark.

Trap nesting. (Northwest Experiment Station, Crookston) Minn.

Egg laying, physiology and correlations. (See also Genetics.)

Physiology of a reproduction in poultry. The mechanism of the internal secretions and their relation to egg production and to secondary sexual characters. Mechanism of anaphylactic shock and castration and transportation experiments. Me.

The inheritance of weight, color, and texture of shell of eggs in the single comb White Leghorn. Idaho.

Inheritance of egg production in heavy breeds. N.Y. Cornell.

Inheritance of egg production in Leghorns. N.Y. Cornell.

Breeding as affecting egg production. Tex.

Date of hatching to laying of first eggs. The relationship between the date chicks are hatched and the time they lay their first eggs, in females of the various breeds; the rate of development in males according to time of hatching; and the relationship between the date first egg is laid and subsequent winter egg production. Okla.

Early laying maturity in relation to good laying. Oreg.

First year's production as correlated to subsequent years. Oreg.

Effect of early laying on egg production. Mo.

Length of period required to reach maturity as an indication of future egg production. Mo.

Influence of range of egg laying on fertility. Hatchability and egg laying of offspring. Okla.

Egg laying, physiology and correlations. (Cont.)

Influence of time of hatching on future production. Mo.

Time of hatching.--To determine the most desirable time for hatching different varieties of poultry for best results in egg production. Ariz.

Influence of climatic conditions on egg production.--To determine if single comb White Leghorns of same breeding and raising - one half at Winnipeg and the other half at Raleigh, both flocks receiving the same feed in kinds and amounts and normal daylight as feeding hours, will show the same egg production curve. Do birds at a southern latitude lay earlier and finish their year's laying earlier? N.C.

Effect of molt on egg production. Iowa.

Time of molting as an index to past and future egg production. Mo.

A study of high winter egg production as a factor in the single comb White Leghorn. Idaho.

The analysis of individual egg production records. N.J.

Study of types as a basis for selecting pullets for egg production. Iowa.

Study of type. Relation between high egg production and type or conformation. Oreg.

The relation of external characters to egg production. N.Y. Cornell.

External characteristics of the hen as indicating laying capacity. Oreg.

Studies in measurements and weights of laying hens.--To determine the kinds and extent of changes in body measurements and weights during laying and non-laying conditions of hens, and the relation, if any, between the type and weight of a hen and her total yearly production. Ind.

The feeding of tonics to laying pullets.--To find the influence of so-called tonics of stimulants in egg production of Leghorn pullets. Ind.

Feeding hens to influence hatching power of eggs.--To find the influence of different feeds upon the fertility and hatching power of eggs from breeding hens of the Barred Plymouth Rock and White Leghorn breeds. Ind.

Egg investigations: (a) To compare size, weight, and color of eggs produced by individual hens beginning with pullets and ending with mature fowls, (b) to determine any relation between the size and shape of egg set and the size and shape of egg produced by progeny, as a factor in standardizing eggs for market. N.Dak.

Increasing weight of brown and white eggs. Okla.

Egg laying, physiology and correlations. (Cont.)

Value of heating water for winter egg production. Okla.

The correction factor in the analysis of differences in flock production. N.J.

The analysis of individual egg production records. N.J.

Feeding and fattening, general. (See also Animal nutrition.)

Feeding hens for breeding purposes. N.Y. Cornell.

Methods of feeding pullets for egg production. N.Y. Cornell.

Methods of feeding pullets for egg production under artificial illumination.
N.Y. Cornell.

Poultry feeding.--To devise a simple ration for feeding poultry. Md.

Poultry feeding experiments.--To test the value of common local feeds fed. N.M.

The utilization of waste or cheap foods in poultry feeding. N.Y. State.

Growth curve experiments. (Barred Rocks and White Wyandottes).--To obtain more accurate knowledge of food requirements of hens for growth and egg production by study of effect of feeding one kind of grain with the addition of chemical preparations. Conn. Storrs.

Experiments to determine the best methods and rations for finishing market poultry. Iowa.

To determine the most desirable feeds and feeding methods in connection with chicken production under local conditions. Guam.

Green food for egg production. W.Va.

Feeding experiments with poultry relating to the importance of coarser vegetable foods. N.Y. State.

Digestion experiments with poultry.--To determine the percentage of the various organic nutrients that are digestible in our southern poultry feeds. N.C.

Comparative values of wet and dry mash for winter egg production.--To compare the relative value of warm wet mashes and dry mashes for winter egg production and the effect of the above mashes upon the weight of the eggs. Okla.

Feeding and fattening, general. (Cont.)

Fattening experiments.--To determine if milk alone in the fattening ration will provide ample elements for maximum gains in fattening. (Coastal Plains Substation, Willard) N.C.

Poultry feeding.--To study: (a) Effect upon size and weight of eggs produced of varying feed rations, (b) the value of short time feeding, in confinement, of market poultry, and (c) to test feeds with baby chicks and for development of pullets. N.Dak.

Cockerel fattening. (Northwest Experiment Station, Crookston) Minn.

Crate fattening of roasters. Mont.

Poultry feed palatability. Kans.

Illumination of hen houses.

Lighting poultry houses. Utah.

Electric light and egg production. Influence of artificial illumination on egg production. N.Y. Cornell.

The use of artificial lights as a means of increasing egg production. Iowa.

Artificial light in egg production, using lights morning and night in the laying house. Mont.

Electric lighting of poultry houses.--To find the influence of electric lights in a poultry house between 8 and 9 p.m. on two-year old Leghorn hens. Ind.

Effect of artificial illumination on breeders. N.Y. Cornell.

The effects of using artificial lighting on breeding hens. N.J.

Effect of artificial illumination on growth and maturity. N.Y. Cornell.

Effect of artificial illumination on egg production. Ky.

A study of the methods of poultry house lighting. N.Y. Cornell.

The amount of light required and the method of distribution in the artificial lighting of henhouses. N.Y. Cornell.

Incubation, fertility, and hatching of eggs.

Incubation studies. Utah.

Incubation, fertility, and hatching of eggs. (Cont.)

Incubation of eggs. Mont.

Artificial v. natural incubation. (Northwest Experiment Station, Crookston) Minn.

Artificial incubation.--To determine the effects of moisture, turning of eggs, cooling of eggs, position of eggs in tray, ventilation, steaming of eggs at pipping time, sprinkling of eggs at pipping time, and freak eggs. Okla.

Incubation temperatures.--To determine results of subjecting eggs during incubation to varying degrees to temperature and its relation to optimum temperature for artificial incubation of hen's eggs. Difference in results secured from White Leghorn and White Plymouth Rock eggs. Variation of optimum temperatures in different types of incubators; loss of moisture as a factor of difference in temperature. Ind.

Incubation experiments. Influence of texture of shell on hatchability. (Coastal Plains Substation, Willard) N.C.

The effects of subnormal temperatures on chick embryos, partly to determine whether resistance to cold is one character by which "high" and "low" match fowls differ. Conn. Storrs.

Influence of management and feeding on vigor in germ of hen's eggs: (a) Corn v. wheat rations as affecting the vigor of chick embryos, (b) a study of factors (confinement and the use of green feed) affecting the fertility, hatchability, and size of hen's egg, (c) the influence of an abundant supply of protein and ash constituents of animal origin in a ration for little chickens as affecting their mature weight and the number and average size of the eggs which they lay. W.Va.

Egg hatching investigations.--To determine the length of time eggs may be kept for purpose of incubation.--To study the effects of different methods of handling eggs previous to incubation. Md.

Incubation studies.--To determine the causes contributing to the mortality of artificially incubated eggs. Kans.

Egg turning. (Northwest Experiment Station, Crookston) Minn.

Incubation tests.--To make a study of the different kinds of incubators and their efficiency under arid conditions. N.Mex.

Management, housing.

Housing pure-bred poultry. Ky.

Management, housing, (Cont.)

To devise and improve poultry equipment and methods used in handling poultry. Md.

Feeding demonstrations.--To obtain records of egg production, feed consumed, labor costs, and other items of expense and income on a large flock kept under farm conditions and fed and managed by Purdue methods. Ind.

Marketing and distribution.

Market experiments: (a) Fleshing broilers.--To determine best feeds and methods for best results using southern poultry feeds, (b) shipping shrinkage experiments with broilers.--To determine if means can be devised to curtail the shrinkage due to shipping, (c) egg shipping experiments.--To get shipping experience and learn facts as to best methods. N.C.

The testing of various methods of egg packages, through uniform shipments and laboratory tests, to ascertain the methods of packing that will cause the least breakage at a minimum cost. N.Y. Cornell.

Protein supplements for poultry.

Comparison of the feeding values of protein from vegetable sources with protein from animal sources for laying hens. Tex.

Vegetable and animal sources of proteins for laying hens. Ark.

Practical poultry feeding studies. Animal proteins (dried buttermilk, meat scrap, dried blood, and digester tankage) v. vegetable proteins (soy bean meal and peanut meal); dry lot v. range; influence of velvet beans on growth and egg production and the same for cottonseed meal; influence of lights on egg production; influence of straw lofts on egg production. N.C.

The comparative value of proteins from different sources for laying hens. Idaho.

Protein and green feed supplements in rations for laying hens. Ohio.

Brewing barley v. hullless barley for laying hens. Mont.

Value of hullless barley, oats, corn, and peas in the egg ration. Mont.

The use of corn in rations for laying hens and growing stock. Iowa.

Whole v. cracked corn for poultry. Md.

"White" v. "yellow" rations for poultry. Wis.

Protein supplements for poultry. (Cont.)

Value of protein for laying hens. A comparison of cottonseed meal, beef scraps, and skim milk as egg producers. Miss.

A comparison of the feeding value of kafir, cane, milo, and corn. Kans.

Feeding value of soy bean oil meal for Barred Plymouth Rock pullets.--To find if soy bean oil meal can be substituted for tankage in a ration for Barred Plymouth Rock pullets. Its influence on fertility, hatching power, egg production, health, and cost. Ind.

Feeding value of soy bean oil meal in a laying ration for White Leghorn pullets.--To find if soy bean oil meal can be substituted for tankage in a ration for White Leghorn pullets. Its influence on fertility, hatching power, egg production, health, and cost. Ind.

Poultry feeding. A comparison of corn silage, buttermilk, grain, and meat scraps, with commercial feeds. Utah.

Animal food in forcing egg production. Mont.

Sources of animal protein [for poultry]. N.Y. Cornell.

The use of animal food in a mash for laying hens. A comparison of dried buttermilk, fresh buttermilk, tankage, and beef scraps as a source of animal protein for laying hens. Iowa.

Effects of animal proteins on winter egg production.--To determine the percent of meat scrap which when fed in a dry mash with other feeds will give the most economical egg production during the winter months; the influence of feeding various per cents of meat scraps upon the weight of the fowl, weight of egg, and the amount of feed consumed; a comparison of the value of meat scraps and tankage as a winter egg producer; and to compare the mortality of the various pens. Okla.

The value of meat scrap in a laying ration.--To find the proper proportion of animal protein in the form of meat scrap in a laying ration for White Plymouth Rocks, its bearing on the per cent of meat scrap variability in quantity of meat scrap which can be fed without influencing egg production, feeding value of meat scrap; and results of too much meat scrap on egg production, health, fertility, hatchability, etc. Ind.

Meat scraps v. peanut meal for laying hens. Ohio.

To compare the value of protein in meat scrap, cottonseed meal, peanut meal, high grade tankage, and buttermilk as a suitable source for egg production and the effects of each on the breeding qualities of poultry. Okla.

Protein supplements for poultry. (Cont.)

Testing the effect of fish meal on the flavor of eggs. Ma.

The value of sour milk, beef scrap, cottonseed meal, gluten meal, and oil meal in rations for egg production.--To obtain the feeding values of meat scrap, sour milk, gluten meal, cottonseed, and oil meal when fed to laying hens. Mo.

A comparison of sour skim milk and semi-solid buttermilk, with and without mash, for laying hens. Ky.

Miscellaneous.

Meat qualities and egg production. Oreg.

Lime stone grit v. oyster shell for poultry. Md.

The effect of calcium on the composition of the eggs and carcass of the laying hen. Ky.

The commercial production of roaster and capon poultry meat. N.J.

The practical phase of caponizing poultry.--To find whether capons will grow to be heavier than roosters, and whether caponizing of excess roosters will be of value in this part of the country. P.Mex.

Temperature studies on poultry. N.Y. Cornell.

Flock segregation. N.Y. Cornell.

Rearing and growth experiments.--To determine the cost of putting birds into laying houses by November 1st. (Coastal Plain Substation, Willard) N.C.

Poultry management. Test to certain poultry tonics and of various appliances now on sale. Me.

Investigations in poultry farming. (Northeast Demonstration Farm, Duluth) Minn.

An economic study of the poultry industry. A study of the farm industry relations of the poultry industry and of other economic factors in the poultry industry. Kans.

To determine how best to present educational poultry work for country people. N.C.

Miscellaneous. (Cont.)

Routine work with poultry. Exact and detailed records of all matters concerning poultry, including autopsies of all birds dying, etc. Me.

To determine the relation between utility score card characters of pullets and egg production. Mo.

Poultry demonstration. S.C. Rhode Island Reds.--To demonstrate the value of pure-bred poultry on the farm. (North Louisiana Experiment Station, Calhoun) La.

Miscellaneous poultry investigations. Calif.

DAIRY CATTLE

General.

Dairy studies. (Holly Springs and South Mississippi Substations) Miss.

Experiments with dairy cows. (Huntley Substation) Mont.

Dairy herd development. (Northwest Experiment Station, Crookston) Minn.

A study of the herd records of four dairy breeds, with reference to feed, total milk, solids, and fat. Conn. Storrs.

A study of the weight in dairy cattle. Nebr.

Weight of dairy cattle as influenced by pregnancy, age, and methods of handling. Idaho.

Standards of growth for dairy cattle. Mo.

A study of the normal growth of dairy cattle. Idaho.

Cattle experiments. The normal growth of dairy and beef cattle as a whole and of certain parts. Me.

Cattle experiments. The determination of the growth curves of dairy and beef cattle. Me.

Dairy farm management.--To encourage the introduction of dairying as a type of farming for this area of the State. (Caldwell Substation) Idaho.

The economic production of Great Plains dairy cows. N.Dak.

Dairy farm management.--To determine the best combination of crops to be grown for a dairy herd. (Caldwell Substation) Idaho.

General. (Cont.)

Cattle experiments. Study of the relation of one lactation to another in the dairy and beef breeds of cattle. Me.

Physiological disturbances which result in the breakdown of dairy animals under heavy milk production in the Willamette Valley. Oreg.

The calcium balance of dairy cows. Iowa.

Protection of dairy cattle from flies. Okla.

Breeding. (See also Genetics.)

Cattle breeding.--To determine the best method of developing a strain of dairy cattle adapted to Great Plains conditions. To study a cooperative breeding enterprise and to determine feasible means of procedure. N.Dak.

The study of the inheritance of characters in dairy cattle in a cross-bred Guernsey-Holstein herd. Ill.

Herd development work.--To develop a high producing herd by the use of proven sires; the value of a good sire by the increased production of his daughters over that of their dams. To compare the results of developing a herd by the use of good sires v. the use of high producing females. (Coastal Plain Substation) N.C.

Cattle breeding.--To encourage the breeding of improved cattle, and to determine the degree of hardiness possessed by progeny of pure-bred Ayrshire cattle under Guam conditions, and to evolve a strain of cattle for Guam resulting from different crosses of Ayrshire on native cows for the purpose of attaining maximum hardiness, size, feeding qualities, etc. Guam.

Management of dairy herd.- Breeding for type and production. A study of the effect of using pure-bred Guernsey sires upon a herd of grade dairy cows. (North Central Branch Station, Grand Rapids) Minn.

Cattle breeding experiments for milk. The production of hardy milk stock for Alaska. (Kodiak Substation) Alaska.

A comparison of line breeding and out-crossing as systems of breeding dairy cattle. S.C.

Cattle experiments.--To analyze by cross-breeding experiments, by private records and advance registry data, the mode of inheritance of the characters found in dairy cattle with especial reference to milk yield, butter-fat percentage, and beef production. Me.

Inbreeding of dairy cattle in relation to health and production. Ohio.

Breeding. (Cont.)

Inbreeding and line breeding compared with out-crossing as regards its effect upon dairy cattle, their milk and butter-fat production, conformation, fecundity and general characteristics. (In cooperation with the U. S. Department of Agriculture) Idaho.

Line breeding of Holsteins. S.C.

Breeding experiments with dairy cattle. A comparison of line breeding with out-crossing and inbreeding with out-crossing in the breeding of dairy cattle. N.J.

Development of dairy qualities in Galloways.--To develop a hardy dairy breed. (Kodiak Substation) Alaska.

Breeding dual purpose cattle.--To test adaptability of milk shorthorns to that section of the country. (Matamauska Substation) Alaska.

A study of the fluctuations in the sexes of the offspring of dairy bulls in a given season; and a study of the correlation between the percentages of males produced by dairy bulls in a given season with those of a previous season. Ill.

Cooperative breeding records on dairy cattle. Relating to the physiology of reproduction and including the influence of breed, age of sire and dam, condition of dam, time of service, and times served etc. on gestation, sex, birth weight, and the oestrus cycle. Me.

A study of the prepotency of the bulls used in the dairy herd. S.C.

Analysis of the ability of different bulls within the different breeds to transmit milk yield and butter-fat percentage to their offspring. Me.

Influence of feed, environment, and breeding on native unimproved cows, and their offspring, as regards development of milk-producing qualities, composition of milk digestive capacity and utilization of feed in dairy and beef-production. Iowa.

Calves and heifers.

Metabolism trials with young calves. Iowa.

Experiments in calf feeding. Ky.

A study of (dairy) calf rations. Wash.

Comparison of feed for (dairy) calves. Iowa.

Calves and heifers. (Cont.)

Food requirements of growing dairy cattle. Nebr.

A study to determine the feed required and the cost of raising dairy calves.
S.C.

The relation of vitamins to the growth of dairy calves. Minn.

A study of the protein requirements for growth of dairy calves. Pa.

Winter rations for young dairy stock in Idaho. Idaho.

Winter rations for dairy heifers. Ky., Oreg.

Feeds for wintering dairy heifers under practical farm conditions. Idaho.

Rations for dairy heifers, during the winter months.--To determine the most economical ration for wintering dairy heifers under New Jersey conditions.
N.J.

A study of the value of different rations for dairy heifers.--To determine the relative value of rations for dairy heifers for winter feeding, when the ration is made up of various roughages with and without grain. Ind.

Dairy heifer development. The effect of three rations fed continuously.
Kans.

A study of the best methods of feeding calves while receiving milk. Idaho.

Raising (Dairy) calves with the minimum amount of milk. Minn.

Minimum milk requirement for raising dairy calves. N.J.

Rations for dairy calves: (a) Limited amount of whole milk or skim milk, (b) whey as a substitute for skim milk. Wis.

Supplementing whole milk in raising calves. Md.

Attempting to secure a substitute for milk in the growing of young calves.
Mass.

Substitutes for milk in feeding dairy calves. Ariz.

The rearing of calves on substitutes for skim milk. A study to establish a formula of proved value for a milk substitute; and to determine the general principles, chemical, physical, and physiological, on which the formation of a substitute must be based. N.Y. Cornell.

Study of calf raising on home made calf meals (mixture of bran, ground barley, oil meal, and ground clover hay). Oreg.

Calves and heifers. (Cont.)

Value of various protein supplements for growing dairy heifers. Comparison of alfalfa, hay, and prairie hay with various protein supplements in developing dairy heifers. Kans.

A study of the value of feeding silage with alfalfa hay for winter feeding of dairy heifers. Idaho.

Legumes for growth of dairy calves. Ohio.

Peanut meal v. cottonseed meal for maturing heifer calves.--To determine the relative value of peanut meal as compared with cottonseed meal as a protein carrier for developing dairy heifers. (Coastal Plain Substation) N.C.

Calf feeding.--To determine the practicability and economy of substituting soy bean meal for linseed oil meal in the ration of the dairy calf. Ind.

Velvet bean meal v. wheat bran as a feed for dairy heifers. Ala.

Mineral supplements for dairy heifers and for dairy cows. Wis.

Study of the self-feeder in the feeding of yearling heifers. W.Va.

The self-feeder for dairy calves.--To determine the practicability of using the self-feeder in rearing dairy calves. Nebr.

Influence of nutrition of heifers and the age of breeding upon their subsequent development. Protein requirements for growth. Mo.

A study of the growth of dairy heifers. Ky.

Cost of production. (See Rural economics, cost of production.)

Feeding experiments, general.

Maintenance ration for dairy cows. Vt.

Food requirement for growing dairy cattle. Energy requirements for growth. Minn.

Feeding milk cows during the dry period.--To determine the effect of the plane of nutrition during the dry period and the consequent condition at time of freshening upon the milk and fat production of that lactation period. N.J.

Acre value of pasture for dairy cows. Colo.

Feeding experiments, general. (Cont.)

Tuban clover and sudan grass as pasture for dairy cows. Mich.

A comparison of grain feeding with no grain feeding of dairy cows on native pasture. (Colby Substation) Kans.

Soiling experiments with dairy cows, using alfalfa, clover, corn, and sunflowers. Mont.

Development of a soiling crop system for summer soiling for dairy cows. (Astoria Substation) Oreg.

Dairy investigations. Effect of summer soiling on milk production. (Astoria Substation) Oreg.

Roughage as a feed for dairy cows. Nebr.

Feeding dairy cattle. Green feed v. cured feed for dairy cattle. Ariz.

A study of the value of feeding grain with hay and silage for milk production. Idaho.

Legumes for milk production. Ohio.

Cut alfalfa hay as a supplemental feed for purchased grains in feeding dairy cows. N.J.

Comparison of first, second, and third cuttings of irrigated alfalfa hay with each other and with corresponding cuttings of dry alfalfa as feeds for milk production. Wash.

Corn and alfalfa feeding experiments (with dairy cows). N.J.

A comparison of milk producing qualities of soy bean hay and alfalfa hay. W.Va.

Soy bean hay v. alfalfa hay for dairy cows. Wis.

Feeding and pasturing experiments with dairy cattle. Pasturing tests with Sudan grass, feeding tests with sudan hay, alfalfa hay, and cane hay. (Fort Hays Substation) Kans.

A test of Sudan grass as a pasture for dairy cows. (Colby Substation) Kans.

A comparison of silage and grain with alfalfa hay and grain without silage for dairy cows producing milk. (North Platte Substation) Nebr.

The comparative value of various silages for milk production. Idaho.

Feeding experiments, general. (Cont.)

A comparison of corn silage, artichoke silage, sunflower silage, carrots, and potatoes as feed for milk production. Wash.

Corn stover silage v. normal corn silage for dairy cows. Wis.

Comparison of corn stover silage and ordinary corn silage for milk production. Pa.

Corn silage v. cottonseed hulls for dairy cows. Ark.

A comparison of corn silage and sorghum silage for milk production. S.C.

A comparison of corn silage with oat and pea silage for milk production. Pa.

Sunflower silage for dairy cattle. Colo.

The use of sunflowers as a silage crop for dairy cattle feeding. Ill.

Sunflower silage with other roughage for dairy cows. Mont.

A study of sunflower silage as feed for dairy cattle. W.Va.

Silage investigations. Feeding trial comparing vetch, corn, and sunflower silage for dairy cows. Oreg.

A comparison of corn silage with sunflower silage for milk production. Pa.

Management of dairy herd. Dairy cattle feeding. A comparison of corn v. sunflowers for silage feed for dairy cows. (North Central Branch Station, Grand Rapids) Minn.

A comparison of sunflower silage and corn silage for milk production. (Archer Substation) Wyo.

Sunflower v. corn and pea and oat silage for dairy cows. (Upper Peninsular Substation) Mich.

Feeding dairy cattle. Mineral supplements in rations for dairy cattle. Ariz.

A study of the effects of feeding inorganic calcium to milking cows. Del.

A study of home-grown and purchased feedstuffs for economical milk production. Fla.

Home-mixed v. ready-mixed feeds for the dairy.--To determine the value of ready-mixed feeds that are on the market compared with the home-grown and home-mixed feeds, special attention being given to the feed cost of milk production. (Coastal Plain Substation) N.C.

Feeding experiments, general. (Cont.)

Effect on mature cows of feeding calf meal, skim milk, and whole milk during the first six months of age.--To determine whether the growth and milk-producing ability of dams and vigor of offspring is affected by feeds consumed during the first six months of age. Is impetus for growth affected by these feeds? Can stunted calves be brought to normal size by liberal feeding? Ind.

Herd management.

Dairy herd management. N.Y. State.

Dairy herd management and improvement. (Valentine Substation) Nebr.

The dairy herd. Maintenance and management. (Scottsbluff and North Platte Substations) Nebr.

Dairy farm management.--To determine the proper number of animals to be maintained on an 80-acre unit of land and their proper management. (Caldwell Substation) Idaho.

Dairy farm management.--To encourage the introduction of dairying as a means of increasing farm profits and of maintaining permanent soil fertility. (Sandpoint Substation) Idaho.

Cattle experiments. Study of dairy management for Maine conditions. Me.

Dairy investigations. Herd improvement and management under coast conditions. (Astoria Substation) Oreg.

Dairying in the tropics. The production, handling, and marketing of milk, and the making of butter under tropical conditions. Porto Rico.

Maintenance and management of pure bred Holsteins. (Hettinger Substation) N.Dak.

To determine the relation of various dairy practices and clean market production and to find a practical dairy procedure which may be applied to the average farm. Mich.

Commercial disinfectants (for the dairy herd). N.J.

Milking machines.

A study of the milking machine as a factor in milk contamination. Ill.

Testing the efficiency and practicability of cleaning and caring for milking machines. Conn. Storrs.

Milking machines. (Cont.)

The practicability of the milking machine. Tex.

Mechanical results of milking machines and bacterial contamination of mechanical milkers. S.Dax.

Study of application of methods of sterilizing milking machines to farm conditions. N.Y. State.

Milk secretion and production.

Experimental analysis of the heredity factors determining milk and meat production in cattle. Wis.

The inheritance of capacity for fat production in dairy cows. Conn. Storrs.

Physiological studies on the mechanism of milk secretion. Me.

Synthetic capacity of the mammary gland. Wis.

Milk secretion studies, using condemned tubercular cattle. The study of the source of milk solids. Vt.

Determination of the protein and energy requirements for milk production. Va.

The minimum protein requirement for milk production. Pa. Inst. Anim. Nutr.

Statistical studies on the relation of percentage fat content and yield of milk, with the primary purpose of deriving a method of equating milk yield for the variable fat percentages when comparing the production of different cows. Ill.

Investigations into causes of variation in milk and fat production. Iowa.

A study of the effects of leaving milk in the udder at the last milking, preceding the regular semi-official test of pure-bred dairy cattle. Pa.

Factors influencing the percentage and quantity of the fat in the milk of cows on official test, including: (a) The effect of the temperature on the percentage of fat in milk and on metabolism, (b) feed reduction - 50 per cent for three days, (c) influence of the advance of lactation on the percentage of fat in cow's milk; (d) influence of season of year on the percentage of fat in cow's milk; and (e) the variation of fat in successive fractions of a milking. Mo.

The relation of body conformation to milk yield. Me.

Cattle experiments. Relation of age to milk yield and butter-fat percentage. Me.

Milk secretion and production. (Cont.)

Cattle experiments. Relation of feed and feeding to growth and milk yield. Me.

A study of the relation of milk and fat yields to the amount of feed consumed. Ill.

The influence of green feed upon the mineral metabolism of lactating animals and upon the nutritive properties of the milk produced. Ohio.

Dairy investigations. Effect of grain upon milk and butter fat, when cows are on pasture. (Astoria Substation) Oreg.

A study of mineral nutrients with relation to milk production. Nebr.

The value of inorganic calcium phosphate in the promotion of growth and milk production. Mass.

A study of the effect of climatic conditions upon the production of milk.--To determine the effect of changes in temperature, humidity, and other climatic conditions upon the production of milk. (Coastal Plain Substation) N.C.

Late v. early fall calving in the dairy herd.--To determine the best season of the year for the dairy cow to be in the lactation period. Miss.

The effect of maturity of ensilage corn upon milk production. Pa.

Effect of diseases in the cow on milk.--To determine the rôle played by milk both in the spread of disease in cattle and causation of unfavorable symptoms of diseases in man. Mich.

A study of colostrum with special reference to the effect of heat (pasteurization) on its physico-chemical, bacteriological, immunological, and nutritional changes. Mo.

A study of the cryoscopy of milk. Conn. State.

Analysis of milk records.--To determine the age changes and the relation between total solids not fat, and milk production per cent fat and butter-fat.--To determine the reliance which may be placed in the different points used in the score card as a measure of milk production of the cow. Me,

Official testing and inspection.

Official testing (dairy). (Northwest Experiment Station, Crookston) Minn.

Official testing and inspection. (Cont.)

Official testing - dairy. Wash.

Official testing of dairy cows. Mo.

Official testing of dairy cows in the State. S.C.

Official testing for advanced registry or register of merit in the State of Idaho. Idaho.

Advanced registry testing. Va.

Certified dairy inspections. Calif.

Supervision of dairy cows' records. Colo.

Protein supplements for dairy cattle.

Protein needs of dairy cows. Vt.

High and low protein rations for cows: Effect on dairy product and progeny. Ohio.

Twenty per cent v. twenty-four per cent protein for dairy cows. Md.

The value of feeding grain to dairy cows during the dry rest period. Idaho.

Dairy rations.--To find the best amounts of grain to include in a ration with corn silage. Utah.

Coconut meal v. gluten meal for dairy cows. Md.

A study of the effect of cottonseed meal and hulls on pregnancy and lactation in milk cows. N.C.

Effect of cottonseed meal on cows and heifers in reproduction.--To determine the effects of various quantities of cottonseed meal on the reproductive organs of beef and dairy females when fed and handled under various conditions. N.C.

Cottonseed v. cottonseed meal on dairy cows.--To determine the relative value of cottonseed compared with cottonseed meal as feed for dairy cows. N.C.

A study to determine the most economical concentrate to supplement cottonseed meal as a feed for dairy cows in the South. S.C.

The effect of peanut meal when fed to dairy cows on the qualities of the butter-fat and methods by which this feed may be fed without undesirable effects. Ga.

Protein supplements for dairy cattle. (Cont.)

Velvet bean meal v. wheat bran as a feed for dairy cattle. Ala.

Velvet bean feeding work.--To determine the value of velvet bean meal as a supplement to cottonseed meal for milk production. (Coastal Plain Station) N.C.

DAIRY PRODUCTS.

Bacteriology of dairy products.

Description and classification of milk bacteria. N.Y. Cornell.

The bacterial content of milk from milking to cooling and its control. S.C.

Microbiological investigations in milk. Mass.

Bacteriological examinations of certified milk. Calif.

Observations on the bacterial counts of milk at hourly intervals: (a) When cooled to 70° F. immediately after milking, (b) when cooled to 50° F, (c) when left uncooled. Conn. Storrs.

Accuracy of bacterial counts in milk samples. N.Y. State.

A bacteriologic study of the accuracy and applicability of the method used for estimating the number of bacteria in milk and for judging the keeping quality of milk. Ill.

A comparison of the direct microscopic method and the plate method for counting bacteria in milk. N.Y. Cornell.

Comparison of methylene blue reduction test and other tests for determining bacterial content of milk. Wis.

Studies of the compounds in milk and its products, and their changes under the influence of certain classes of bacteria. N.Y. State.

Changes that take place in the quantitative bacterial content of morning milk. Minn.

The American high acid organisms found in milk. Iowa.

Studies on the bacterial flavors and odors of milk. Iowa.

Tubercle bacteria in milk and effect of pasteurization on these organisms. Minn.

Bacteriology of dairy products. (Cont.)

A study of the Torula forms responsible for the yeasty fermentation in cream. Iowa.

The bacteriology of butter. Okla.

Chemical and bacterial study of the keeping qualities of butter.--To determine the action of specific bacteria upon milk proteins and a study of the cleavage products produced by the action of those organisms. Ind.

Cheese flora studies. N.Y. State.

The bacteriology of ice cream. Okla.

Study of bacteria in ice cream. Mich.

Study of application of methods of sterilizing milking machines to farm conditions. N.Y. State.

The bacterial flora of milk utensils with reference to the clumping of bacteria in milk. N.Y. Cornell.

Dairy utensil flora studies. N.Y. State.

Bacterial content of dairy plant wastes. N.Y. Cornell.

Butter and buttermaking.

Study of the chemistry of butter-fat and the effect of food in modifying its chemical and physical character. Mass.

A study of the chemistry and physico-chemistry of churning and the factors which influence churnability. Minn.

Moisture contents of hard and soft butters. Determination of relationship, if any, of moisture content to varying solidity, texture, etc. Vt.

Factors influencing grade of butter.--To grade cream for butter making. Effect of pasteurization for improving butter. Temperature of churning at different seasons. Methods of salting. Uniform methods of manufacture. Okla.

The glass enameled tank vs. the copper lined vat, as a pasteurizer of cream for butter making. S.Dak.

Cooling cream on the farm.--To determine the effect of different methods of caring for cream on the quality of the cream, and the quality of butter that can be made from a definite grade of cream. Ind.

Butter and buttermaking. (Cont.)

- A study attempting to develop a method of reducing the butter-fat loss in churning. Ill.
- A study of the various factors, especially the biological factors, that bring about the development of flavors in butter. Ill.
- A study of whey butter, especially as regards flavor and body. N.Y. Cornell.
- Factors influencing the keeping quality of butter. Minn.
- Keeping qualities of butter.--To determine the factors influencing quality, flavor, and deterioration of butter during storage, including influence of salt, decomposition of proteins, pasteurization, and bacterial flora, as well as the influence of temperature, coloring matter, lactose, fat, and enzymes. Mich.
- Influence of acidity of cream on flavor and keeping qualities of resulting butter. Iowa.
- Chemical and bacterial study of the keeping qualities of butter.--To determine the action of specific bacteria upon milk proteins and a study of the cleavage products produced by the action of those organisms. Ind.
- Effect of pasteurizing temperature on quality and keeping quality of resulting butter. Iowa.
- The bacteriology of butter. Okla.
- Butter oil as a substitute for sweet butter in manufacture of homogenized cream, ice cream, etc. Vt.
- The effect of peanut meal when fed to dairy cows on the qualities of the butter-fat and methods by which this feed may be fed without undesirable effects. Ga.
- Comparison of alkali, alcohol, rennet, and acid, temperature, and other tests for ripeness of milk: (a) For cheese making; (b) for butter making. Vt.
- A comparison between butter factory and cheese factory in returns to the producers. Iowa.

Cheese and cheesemaking.

- Studies in cheese making. Objects: Effect of temperature of cooking on texture of cheese; effect of amount of rennet or pepsin on rapidity of curing cheese; the possibility of curing cheese in Oklahoma factories; controlling factors in proper handling and marketing of cheese in Oklahoma. Okla.

Cheese and cheesemaking. (Cont.)

Manufacture of brick cheese from pasteurized milk. Wis.

The distribution of moisture in cheddar cheese and changes in its percentage.
N.Y. Cornell.

Experiments in the dessication of cottage cheese. Conn. Storrs.

Cheese making - (cottage, Neufchatel, whey, Romano, etc.) A study of the practice of cheese making with special reference to the manufacture of foreign cheeses. Vt.

Comparison of imported and domestic Swiss cheese and improvements of the latter.
Wis.

Comparison of alkali, alcohol, rennet, and acid temperature and other tests for ripeness of milk: (a) For cheese making; (b) for butter making. Vt.

A comparison between butter factory and cheese factory in returns to the producers. Iowa.

Ice cream studies.

A study of the principles of ice cream making: (a) The influence of percentage of butter-fat in the mix upon the yield, body, consistency, and quality of the resulting ice cream; (b) the influence of homogenization and emulsification upon the viscosity of the mix. Nebr.

A study of the principles involved in ice cream making with relation to the factors affecting yield and quality. Nebr.

Ice cream investigations. Studies of bacterial, mechanical, and temperature factors in the manufacture, transportation, and storage of ice cream. Kans.

Investigations in the manufacture of ice cream. N.Y. State.

Problems in the manufacture of ice cream. Pa.

The manufacture and chemical and bacterial study of ice cream.--To determine the most suitable and unsuitable methods of manufacturing and storing ice cream and the effects of the methods of manufacture and storage upon the quality of the ice cream. Ind.

Studies in ice cream making. Effect of pasteurization of mixes on overrun and of pasteurization and emulsification of overrun, uniformity of overrun from pasteurized and emulsified mixes. Use of commercial ice cream powders, standardization of mixes for total solids. Bacterial counts on ice cream. Okla.

The effect of each ingredient in the manufacture of ice cream. Mo.

Ice cream studies. (Cont.)

Butter oil as a substitute for sweet butter in manufacture of homogenized cream, ice cream, etc. Vt.

Methods of testing ice cream for butter-fat. A comparison of various acids as to time required, ease of manipulation, character and accuracy of test; comparison of different ingredients upon character of test, such as sugar, gelatin, gum tragacanth, ice cream powder, fruits, eggs, and color material; influence of method of obtaining samples, time cream has been packed and manner of packing; comparison of results with cream and milk bottles; effect of emulsifying and homogenizing upon ease with which test may be made. Okla.

Physical and bacteriological study of gelatin used in making ice cream. Ind.

Factors influencing lactose cuptallization in the occurrence of sandy ice cream. Minn.

Milk composition, handling, and marketing.

Factors concerned in the coagulation of milk by heat. Wis.

The effect of feed on the heat coagulation and other properties of milk. Wis.

Factors influencing the keeping qualities of milk powders. Minn.

The methylene blue method of estimating the keeping quality of milk. N.H.

Factors influencing the percentage and quantity of the fat in the milk of cows on official test. Including: (a) The effect of the temperature on the percentage of fat in milk and on metabolism, (b) feed reduction - 50 per cent for three days, (c) influence of the advance of lactation on the percentage of fat in cow's milk, (d) influence of season of year on the percentage of fat in cow's milk, and the variation of fat in successive fractions of a milking. Mo.

Market milk investigations.--To study old methods and attempt to develop new ones for the determination of the bacteria condition of dairy products with special reference to market milk. Mich.

The glass enameled tank as a complete pasteurizer for market milk. S.Dak.

The pasteurization of milk in the final container.--To study the efficiency of a commercial method of pasteurizing in the bottle and to study methods of cleaning, rinsing, and sterilizing bottles and other steps in the process which might influence its efficiency. Okla.

Milk composition, handling, and marketing. (Cont.)

Studies on the bacterial flavors and odors of milk. Iowa.

Study of the compounds in milk and its products and their changes under the influence of certain classes of bacteria. N.Y. State.

Onion flavor in milk.--To find some practical means of eliminating the onion flavor from milk. N.C.

Enzymes of milk and their relation to abnormal fermentation. Minn.

Factors affecting the total butter-fat content of cows' milk during a period of two days. N.J.

Determination of how the feeding of peanut meal affects the melting point of butter-fat in milk. Fla.

Determination of how the feeding of velvet beans affects the melting point of butter-fat in milk. Fla.

Effect of heat on the calcium phosphates of milk. Minn.

Physico-chemical factors involved in the clotting of milk by rennet. Minn.

A physical chemical study of milk with high apparent (abnormal) acidity. N.Y. Cornell.

Factors affecting the efficiency of hand separators and causes of variation in cream tests. Nebr.

Factors influencing the manufacture of commercial buttermilk. Okla.

Factors influencing the viscosity of milk and their relation to creaming. Minn.

A study of the keeping qualities of plain bulk condensed milk. Ill.

A study of the organisms causing thickening of sweetened condensed milk. N.Y. Cornell.

Chemical and physical properties of reconstituted and reconstructed milk. Minn.

The toxicity of milk. Iowa.

Control of city milk supplies. N.Y. State.

The marketing of dairy products in Oklahoma.--To ascertain general prices of butter-fat of milk and cream in all sections of the State at four periods of the year; the kind of market available; amount of butter-fat, milk, or cream offered for sale at centers in all sections of the State; methods of marketing and form in which butter-fat is marketed; and frequency of marketing and the factors determining prices. Okla.

Miscellaneous.

Miscellaneous experiments and reports on the manufacture of dairy products. Calif.

The organization and construction of creameries. Iowa.

To conduct limited investigations of dairy and creamery troubles as they may arise. Mich.

AGROTECHNY.

Cane Sugar.

Investigation of "thin (cane) juice" clarification. Including: (a) study of the precipitate produced by sulphur dioxide treatment of juice and effect of its removal, (b) effects of hydrogen and hydroxyl ion concentrations in the various processes employed for clarification and control of the sulphitation process, (c) experiments with decolorizing carbons to remove coloring matter and other non-sugars. The effect of acidifying cane juice while the same is undergoing treatment with decolorizing carbon. La.

Decomposition products of reducing sugars by alkaline clarification (glucinic acid, etc.) La.

A study of the deterioration of sugars as affected by the process used in their manufacture, and by the precautions taken for its prevention.--To determine the conditions upon which the manufacture of sugar conforming to the "factor of safety" depends. La.

Microbiological study of the deterioration of cane sugars.--To determine the rôle played by bacteria and yeast in the fermentation of stored sugars and the conditions that influence this process. La.

Study of decolorizing carbons. An investigation of the nature of decolorization, especially by vegetable decolorizing carbons, from a point of view of colloidal chemistry. Experiments on the refining of raw sugars and the manufacture of white sugar directly from cane juice by means of decolorizing carbons. La.

Influence of red rot on the composition of sugar cane.--To ascertain the effect of red rot on the yield and color of sugar cane products. La.

Study of coloring matters occurring in sound canes, or formed during the process of manufacture, and their effect on the color of the products. La.

Maple sugar and sirup.

Studies and cost of maple sirup production. Mich.

Miscellaneous.

Destructive distillation of wood. The utilization of pine stumps and other waste material available in the clearing of cut-over land. Ala.

Corn-stalk sirup investigations. Minn.

VETERINARY MEDICINE.

Anthrax.

Anthrax. Oreg.

Anthrax. A study of general control measures with special attention to the bacterial diagnosis of the disease. La.

Anthrax prophylaxis by means of agressins. Ark.

Cattle diseases. (See also specific diseases.)

Contagious abortion of cattle. Wis.

Investigation of contagious abortion in given herds. Wis.

Infectious abortion of cattle. Conn. Storrs.

Studies in bovine abortion. (Davis Substation) Calif.

A study of immunity and the carrier problem in bovine abortion. Calif.

Immunization of heifers against contagious abortion by using abortion bacilli. Wis.

Infectious abortion in cows.--To produce a serum that will protect pregnant animals against infectious abortion. Ind.

The vaccination of heifers in herds infected with bovine infectious abortion.--To determine the immunizing effect in heifers of breeding age, of subcutaneous inoculation with live cultures of B. abortus. Ind.

A study of outbreaks of bovine infectious abortion and their control.--To collect data relative to the origin of herd outbreaks of bovine infectious abortion; the relation of the ration fed to abortion, and general sanitary control measures. Ind.

Study and control of bovine abortion and complications in the college herd. Mass.

Cattle diseases. (Cont.)

Investigation of contagious abortion, including the study of sterility as a sequel to abortion infection. Wyo.

Contagious abortion in cattle. Including: (a) The pathology of sterility, (b) the agglutination and fixation test, (c) bacterial flora of the vagina and uterus of the cow, (d) infectious white scours and calf pneumonia, (e) ovaritis, and (f) production of artificial immunity. Minn.

Contagious abortion in cattle.--To determine a means of controlling bovine infectious abortion. Mich.

Infectious abortion in cattle. Bacteriological and pathological studies. La.

The bull as a factor in contagious abortion. Wis.

A study of immunization of cattle against blackleg by using aggressins manufactured in the laboratory; also a study of immunity produced by using powder vaccine of double strength. Okla.

Coccidiosis in cattle. Mont.

Infectious diarrhea of cattle. La.

The prevention and treatment of goitre in calves. Wis.

A field and laboratory study of ictero-hemoglobinura of cattle. Calif.

Diagnosis and eradication of Johne's disease. Wis.

Lung worm in calves. W.Va.

Control of calf lung worm. W.Va.

A study of red water in cattle. Wash.

Infection of cattle with avian type of B. tuberculosis. Wyo.

Unknown disease of cattle in Fort Klamath District. Oreg.

An unidentified hemorrhagic disease in cattle. Nev.

Cattle loin disease in the Coastal Plains of Texas. Tex.

A study of an obscure disease of cattle on the range. Wyo.

Sterility in cattle. Del.

Sterility in breeding cattle. Oreg.

Cattle diseases. (Cont.)

Investigations of sterility of cows. Wis.

Effect of diseases in the cow on milk.--To determine the rôle played by milk both in the spread of disease in cattle and causation of unfavorable symptoms of diseases in man. Mich.

Hairlessness and goitre.

Hairless pigs and hairlessness in new born animals. Mont.

Hairless litters.--To determine the cause or causes of hairless litters: To learn whether particular breeds or families of swine are especially susceptible, to study the habits, degree of vigor, longevity, gestation period of hairless litters, and the peculiarities of individual hairless pigs: To study the iodine treatment for hairlessness. N.Dak.

Influence of conditions of environment: High protein feeding and constipating diets on the development of hairless pigs. Wis.

Hemorrhagic septicemia.

Hemorrhagic septicemia. Ky.

Hemorrhagic septicemia in cattle. Oreg.

Variation of the pathogenicity of members of the hemorrhagic septicemia group of bacilli. S.Dak.

A study of the pathogenicity as well as antigenic and biologic properties of the organisms belonging to the hemorrhagic septicemia group. Nebr.

Hog cholera. (See also Serum production.)

Lesions characteristic of hog cholera in immune carcasses. Minn.

An experimental study of hog cholera and the factors concerned in immunity against the disease. Mo.

To determine the age at which pigs from immune mothers become susceptible to hog cholera. Md.

The isolation and cultivation of the specific microorganism of hog cholera and the investigation of methods of treatment based upon a vaccine. Ky.

Microscopical and cultural examination of hog cholera blood.--To study the hog cholera virus and the relation of invading organisms to hog cholera. Ind.

Hog cholera. (Cont.)

Experimental study of hog cholera virus. Hog cholera exposure experiment.--

To determine the length of the period that a hog which has recovered from cholera may act as a carrier of the disease and to determine the length of time that cholera virus may live outside of the hog's body, and the relation of stable flies to the distribution of the disease. Ind.

Experiments on complement fixation in hog cholera. Mo.

Experiments on the viability of hog cholera virus. Mo.

A study of the relation of paralytic disease in hogs to hog cholera. Minn.

To determine the length of time serum-virus treated pigs act as carriers and disseminators of hog cholera. Minn.

To determine the potency and longevity of so-called "clear virus". Minn.

To obtain the percentage of double treated hogs that may later become susceptible to cholera; to find the proper age that pigs may be immunized by the double treatment, and length of time immunity of double treated pigs may be expected to last. Md.

Parasites as a factor in losses following vaccination against hog cholera. Ill.

Cooperative work in hog cholera. Educational work in hog cholera and other diseases of swine. (In cooperation with the Bureau of Animal Industry, U.S. D.A.) Calif.

A record of the results of hog cholera immunization at the University Farm. (Davis Substation) Calif.

Horse diseases. (See also specific diseases.)

Swamp fever in horses. N.Dak.

Swamp fever or infectious anemia in horses and mules. Tex.

Transmission of swamp fever in horses. Wyo.

Orchard horse disease. Study of the disease to determine the cause, pathogenesis, pathological changes, and distribution, and a method of prevention, control, and treatment. Wash.

Contagious abortion of mares and pyaemic arthritis of foals. Minn.

Miscellaneous diseases of farm animals. Studies of horse plague and miscellaneous disease. Kans.

Horse diseases. (Cont.)

Pathology and bacteriology of the reproductive organs of the mare and their relation to sterility. Ky.

Infectious abortion. (See also specific animals and Serum production.)

Contagious abortion. Colo.

Contagious abortion investigations. Mo.

Abortion disease investigations. Studies of pathological lesions. Studies of blood tests and attempts to induce immunity. Kans.

Infectious abortion caused by B. abortus (Bang). Oreg.

Abortion observations.--To determine if wheat product feeds tend to develop the abortion bacilli and if corn feed products foster the growth of antibodies. Md.

Field experiments with contagious abortion vaccine. Wis.

Immunizing horses and cattle against contagious abortion. Ky.

Treating for contagious abortion with methylene blue, carbolic acid, and lugol solution. Ark.

Transmissibility of bovine infectious abortion to swine. Ark.

Necrobacillosis.

Investigations of necrobacillosis of pigs and calves. Wis.

Necrobacillosis - a study of the various activities of Bacillus necrophorus. Wyo.

Parasites. (See also Sheep and Poultry diseases, and Entomology - Parasites, external.)

The Endoparasites of man and domesticated animals. Minn.

The parasites of domestic animals. Their identification, classification, intermediate hosts, and methods of control. La.

Life history and control studies of pathogenic parasites of food animals, including lung worms of swine (Metastrongylus apri and M. brevivaginated) and the control of tape worms of poultry (Syngamus trachealis) and of stomach worms of sheep, with particular reference to the twisted wireworm (Haemonchus contortus), and to Ostertagia circumcincta. Mich.

Parasites. (Cont.)

Parasitic diseases of domestic animals of Guam.--To determine the extent of parasitic infestation among the domestic animals of Guam. Guam

Cattle tick experiments.--To determine the general effect of ticks and tick treatments upon pure-bred, grade, and native cattle. Guam.

Parasites of sheep. W.Va.

Insects and parasites affecting live stock. The screw worm and goat louse. (In cooperation with the Bureau of Entomology, U.S.D.A.) Tex.

Studies in poultry parasitology. Calif.

The feather mite of poultry and its control.--To determine the facts concerning the identify, life history, source of infestations, distribution in Indiana, means of spread, economic importance, prevention, and eradication of the so-called feather mite, Liponyssus silvarium. Ind.

Arthropods injurious to poultry production.--To determine the importance of the various species concerned, to adapt already known measures, and to discover better methods of controlling such species as seem to be worthy of attention. N.J.

Life cycle of Moniezia expansa. Wyo.

Poisoning and poisonous plants. (See also Botany and Chemistry.)

Forage poisoning. Colo., Miss.

Forage poisoning: Field and laboratory investigation of the nature and etiology of forage poisoning.--To discover new facts relative to the cause and extent of forage poisoning and extend the present information by demonstrating the preventative and curative properties of Botulinus serum. Ind.

Investigation of forage and feed poisonings and related problems. Ark.

Food poisoning in sheep and cattle. Active principle of thorned milkweed. Colo.

Loco eradication and loco poisoning. Mont.

Poison plants of our grazing ranges. Ariz.

Poisonous range plants, including Tetradymia glabrata, Atriplex canescens and A. confertifolia, Halepistes cymbalaria, Artemisia spinescens, and four species of lupines. Nev.

Mustard poisoning. Colo.

Poultry diseases. (See also specific diseases.)

Poultry disease investigations. Wis.

Chicken diseases. Colo.

Study and control of poultry diseases in college and station flocks. Mass.

A report of inquiries from poultry raisers of California in regard to outbreaks of disease among their flocks. Calif.

Survey of poultry diseases in Nebraska. Nebr.

Observations concerning the prevalence and distribution of poultry diseases in New Jersey. N.J.

Poultry disease and pest control. Eliminating disease and pests from the poultry flock. N.Dak.

Summer intoxication of poultry.--To determine facts regarding the toxic-like conditions especially prevalent during the summer. Ind.

Pathological studies. Studies on: (a) Entero-hepatitis of turkeys - to determine if the parasite is an ameba or a coccidia, and how to raise turkeys to avoid blackhead, (b) diarrhea of adults - to determine causes and methods of combating these diseases, (c) diarrhea of chicks, (d) other apparently contagious diseases; (e) parasitic diseases, parasites of the State and how to combat them, (f) tumors, both malignant and benign, (g) noncontagious diseases, (h) histological studies, (i) physiological studies, (j) anatomical studies. N.C.

Bacillary white diarrhea of chicks. Conn. Storrs.

Investigation of bacillary white diarrhea.--To determine facts regarding the origin and spread of bacillary white diarrhea and to study the means of definitely recognizing the disease. Ind.

Methods of diagnosis of bacillary white diarrhea. Mass.

Experiments relative to investigations on bacillary white diarrhea. Mich.

A study of white diarrhea in chicks. R.I.

Botulism in fowls. Oreg.

Isolation of a pathogenic anaerobe, Clostridium botulinus, type C (from chickens and ducks). Ill.

Fowl cholera.--To study the origin and spread of outbreaks of fowl cholera and to test the value of vaccine for cholera. Ind.

Poultry diseases. (Cont.)

Etiology and pathology of fowl cholera., Methods for prevention and control.
R.I.

Poultry diseases: (a) To determine the value of vaccination as a means of
controlling chicken pox; (b) to study bacillary white diarrhea as it affects
the adult bird. Mich.

Relationship between chicken pox and various forms of roup, such as "swell head",
colds, and canker, and the preparation of a vaccine for these conditions. Ind.

Preventative vaccination for chicken-pox. Preparation and testing of a vaccine
for the prevention of chicken-pox and securing accurate data as to its pro-
tective properties. Ind.

Chicken-pox immunity studies. Conn. Storrs.

Investigation of roup (Avian Diphtheria) and chicken-pox (Epithelioma contagio-
sum). Calif.

Study of cause, symptoms, prevention and treatment of a disease in poultry,
manifesting itself as epithelioma, roup, etc. Wis.

Poultry disease investigations. Studies of pure culture bacterial vaccines for
roup and fowl typhoid. Kans.

Relation between adequacy of diet and immunity to roup. Kans.

Epitheliosis of poultry. N.J.

Investigations of a septicemia disease among fowls in North Carolina. N.C.

Eradication of gapes on the farm. W.Va.

Gape worms in poultry.--To determine method of transmission and find a remedy.
Md.

Round worms and tapeworms of poultry. Study of life history and the tissue af-
fected to determine their comparative pathology and toxicity. Okla.

Studies of the life histories of the chick tapeworm (Choanotoenia infundibuli-
formis) and the chick nematode (Heterakis perspicillum). Kans.

Embryology of cestodes. House flies as an agent in disseminating fowl tape-
worm. Kans.

The life history and methods of control of the chicken nematode (Heterakis pa-
pillosa). Minn.

The life history and methods of control of the chicken nematode. Minn.

Poultry diseases. (Cont.)

- Green food v. antiseptics as a preventative of intestinal disorders of growing chicks. Ind.
- Study of a nervous disorder in adult fowl causing paralysis in limbs or blindness. R.I.
- Poisonous effects of rose chafers. Conn. Storrs.
- Salamander poisoning in poultry. Oreg.
- Blackhead disease of turkeys. R.I.
- Study of blackhead in turkeys. Conn. Storrs.

Serum production, vaccines, bacterins, and antitoxins.

- Serum production. Nebr.
- The preparation and distribution of biological products. Ky.
- Serum production: Investigation of methods of manufacturing Dorset-Niles anti-hog cholera serum.--To improve methods of producing anti-hog cholera serum, and to maintain such relation with cholera outbreaks and use of anti-hog cholera serum in the field as will enable to observe field conditions as they relate to hog cholera vaccination. Ind.
- Special biological products, including the distribution of Hemorrhagic septicemia bacterin, white scours serum, and blackleg vaccine. Minn.
- The use of killed and sensitized cultures of abortion germ for cattle as a means of immunizing cattle against contagious abortion. Okla.
- The efficiency of commercial anti-abortion vaccines. Ark.
- Production and distribution of anti-hog cholera serum. Mo.
- Cost of producing anti-hog cholera serum.--To determine the actual cost of producing hog cholera serum. Ind.
- Hog cholera investigations. The production, purchase, and distribution of hog cholera virus and serum. Minn.
- Studies of preservatives for hog cholera serum. Wis.

Sheep and goat diseases. (See also specific diseases.)

- Progressive Pneumonia in sheep. Mont.

Sheep and goat diseases. (Cont.)

Sheep losses in feed lots: (a) Hemorrhagic septicemia; (b) losses on peas in the San Luis Valley; (c) ictero-hematuria. Colo.

Stomach worms in sheep and goats. Experiments with a view to ridding the animals entirely from the worms in such a manner as to involve the minimum amount of labor. Tex.

Stomach worms in sheep (Haemonchus contortus). Completion of life history - if other methods of infection besides the food - resistance of the embryos to weather conditions and their effect on the activity and length of the embryonic stage; methods of eradication and control. Okla.

Lung worms of sheep. Life history and control. Okla.

A study of the life history of the stomach worm of sheep. Its effect on the blood of sheep and the methods of remedial treatment. Conn. Storrs.

Modular worms (Oesophagostoman columbianum) in sheep. Their life history and control. Okla.

Life history of Sarcocystis tenella, parasitic in the muscles of sheep. Wyo.

Life cycle of Thysanosoma actinioides, a common tapeworm of sheep. Wyo.

A study of swell head of sheep and goats. Tex.

Swine diseases. (See also specific diseases.)

Diseases of swine. Calif.

Infectious abortion in swine. Ill.

Investigation of cause and control of infectious abortion in swine. Wis.

Distribution of abortion infection in swine by positive reacting immune carriers. Mo.

Immunization of sows against infectious abortion and further studies on the etiology of the disease. Ky.

Dysentery of swine.--To determine the cause and prevalence of dysentery. Ind.

Hog cholera and closely allied infectious swine diseases. N.Dak.

To determine the nature of the disease affecting swine (so-called mixed infection), particularly after vaccination with hog cholera. Okla.

Swine diseases. (Cont.)

Infectious swine diseases or "mixed infection". Study of causes, symptoms, post-mortem lesions, both macroscopical and microscopical, manner of transmission, and control measures. La.

Identification of bacteria causing "mixed infections", diseases of swine and a study of their pathogenic properties. Ind.

Investigations on the action and dose of vermifuge remedies for the hog. Mo.

Lameness or partial paralysis in swine. Ohio.

Tuberculosis.

Tuberculosis of farm animals. Wis.

Cooperative experiments in the control of bovine tuberculosis. Studies under field conditions with the aim of producing tuberculosis-free herds from badly infected herds. Calif.

A study of the causes and means of preventing the spread of tuberculosis in cattle and hogs in California. Calif.

Vaccination against tuberculosis. Wis.

The intradermal test for detecting tuberculosis in cattle and swine. Calif.

Tuberculin tests. Studies on artificial sensitization of healthy cattle; whether certain types of cases are liable to react to one test and not to another; temperature as affected by other factors than tuberculin character; intradermal reaction in relation to extent and character of lesions; whether the intradermal is apt to fail in advanced cases and where the resistance of the body has been broken down; the possible inhibition of the intradermal reaction by a simultaneous thermal reaction. Minn.

Tuberculin testing of cows in certified dairies. Calif.

To study factors that may control the metabolism of bovine tubercle bacillus. Wash.

Avian tuberculosis, rate of spread in a flock, its communicability to hogs. Wis.

Miscellaneous.

Miscellaneous veterinary observations. Mont.

Miscellaneous. (Cont.)

Miscellaneous diseases of farm animals. Studies of posterior paralysis in swine; botulism in horses; parasitic protozoa in swine; and miscellaneous diseases. Kans.

Animal diseases.--To investigate important animal diseases as necessity may arise. Colo.

Diseases of farm animals. Death of animals and cases of serious sickness at University Farm, Davis. (Davis Substation) Calif.

Diagnosis of animal diseases.--To assist veterinarians and stockmen in diagnosing outbreaks of disease, and securing material for investigational work. Ind.

Laboratory and field diagnosis of animal diseases. Ky.

A study of the relation of ozone to animal diseases. Md.

Investigations of obscure diseases (Involving the examination of 669 specimens). Minn.

Venerial form of ligament and leg ulceration. Its cause and control. Mont.

Texas fever immunization work. Tex.

Control of liver fluke infestation through destruction of the snails which act as intermediate hosts. Oreg.

Vaginitis and balanitis. Oreg.

Animal temperatures. Okla.

Temperature range in normal cattle. Mont.

Normal temperature of live stock in Guam.--To determine the normal temperature of cattle, horses, and cariboos under Guam conditions. Guam.

Insects affecting the health of animals. Wyo.

RURAL ENGINEERING.

Clearing land.

Land clearing.--To determine the cost and most practical method of clearing land ready for cultivation. (Sandpoint Substation) Idaho.

Clearing land. (Cont.)

Investigations in cost of land clearing.--To determine the cost of clearing, best methods of preparing newly cleared land for cultivation, and the first crops that can best be raised on the various types of soil. Minn.

Investigations in land clearing methods and equipment. New methods and implements used in clearing land, stump pullers, tractors, and various combinations of methods and equipment, such as dynamite plus the stump puller, dynamite plus the tractor, use of dynamite before and after pulling, use of live stock and of fire, large and small scale clearing under farm conditions. Minn.

Methods of clearing logged-off hill land and tide land. (Astoria Substation) Oreg.

Land clearing investigations: (a) Brush plowing, (b) power requirements for stump removal, (c) studies on time of brushing and seeding cut-over land; (d) use of war salvage explosives in land clearing, (e) factors affecting the efficiency of explosives, and (f) number of cleared acres required in northern Wisconsin to support a farm. Wis.

Investigations in developing newly cleared land. The kinds of plows best adapted to various soil types, hours of labor required for various operations, methods and cost of stone and root picking, and comparison of efficiency of disk and plow for preparation of seedbed for first crop. Minn.

Land clearing. General study of methods and results, and trials of a new stump burner. Oreg.

Land clearing. Use of explosives; method for blasting stumps; and cost of burning stumps. Ala.

Land clearing methods. Explosives v. stump puller. (North Central Branch Station, Grand Rapids) Minn.

Dynamiting land. Ala.

Investigations in methods of development of cut-over land farms. Volume of second growth of brush, when cut in various seasons. (Northeast Demonstration Farm, Duluth) Minn.

Investigations in methods of development of cut-over land farms. Effect of forest fire on cost of clearing. (Northeast Demonstration Farm, Duluth) Minn.

Drainage.

Tiled land compared with untilled land. Ill.

Tile and open drainage. (Northwest Experiment Station, Crookston) Minn.

Drainage. (Cont.)

Drainage.--To improve drainage practice and agricultural conditions. Mich.

Miscellaneous drainage investigations. In portions of State needing drainage. Calif.

Studies in farm drainage. (Delta Substation) Miss.

Drainage systems. A study of different practices followed over the State and their effectiveness. Mont.

Drainage and improvement of wet lands. Drainage of tide lands. Oreg.

Drainage and reclamation of tide lands, especially investigations as to drainage systems. (Astoria Substation) Oreg.

Determination of relative efficiency of differing depths and spacing of drainage lines. Minn.

Drainage of "grease wood lands" to remove alkali and management to restore the structure of such lands. Oreg.

Study of the efficiency of underdrains: (a) Amount of run-off from underdrained land, (b) relation of run-off to rainfall, (c) action of tile drains in lowering the ground water level. (Wenona and other Substations) N.C.

Study of water table and outflow on "white land" and effect of clover, lime, and manure on percolation. Oreg.

Drainage of land by pumping from sump or well. Calif.

Drainage and water control investigations on peat lands. Minn.

Drainage investigations: (a) Settling of peat after drainage, (b) the development of a march plow for breaking new land, and (c) studies in subsoil as a factor in drainage design. Wis.

Investigation of causes of failures of agricultural drain tile, the means of obviating such failures, and mapping areas where extra precautions are necessary. Minn.

A study of the effect of concrete walls of Hopkins' soil bins upon the composition of drainage water. Ill.

A study of losses of nitrogen, phosphorus, calcium, magnesium, potassium, and total solids in the drainage water from soils under different treatments. Ill.

Correlation of land and crop values with cost of drainage. Minn.

Farm buildings and equipment.

Farm buildings. Ala.

Farm buildings.--To study the types of frame and planning of farm buildings from an economic and sanitary standpoint. Mich.

Investigations of farm buildings. Plans of farm buildings prepared by the Farm Building section. Minn.

Farm structures: (a) Farm houses, (b) general farm barns, cattle barns, (c) dairy barns, (d) horse barns; (e) poultry houses; (f) swine houses, (g) sheep sheds, (h) buildings for crop storage, granaries, corn cribs, potato storage houses, root cellars, (i) milk houses; (j) smoke houses; (k) manure pits, (l) machinery sheds, (m) garages, (n) power plants. Iowa.

Equipment for live stock feeding and management including feed bunks, alfalfa racks, mixing box, dipping vat, combination sheep rack, self feeders for swine, and other miscellaneous equipment. Iowa.

Equipment for live stock feeding and management. Specifications and construction. Iowa.

Equipment for live stock feeding and management. Beef cattle barn, Iowa State College; - specifications and construction. Iowa.

Equipment for live stock feeding and management. Small farm elevator for live stock farm; specifications and construction. Iowa.

Cattle feeding barns and equipments. Iowa.

Dairy barns and equipment. Iowa.

Farm building ventilation. Minn.

Comparison of efficiency of King and Rutherford systems of ventilation. Wis.

Heating and ventilating of homes, including installation and operating data. Minn.

An investigation into the efficiency of various barn ventilating systems. Iowa.

Community or centralized hog house construction. Iowa.

Housing pure-bred poultry. Ky.

Silo construction, including the Iowa silo, the wood hoop silo, treatment to make silo walls impervious, deterioration of concrete in silos, and silo capacities. Iowa.

Farm buildings and equipment. (Cont.)

The silo in Guam.--To determine the practical value of the silo under Guam conditions. Guam.

Design of a windmill of the hollow cup, horizontal type for farm lighting purposes.--To design a horizontal windmill for use in developing electricity. Ind.

Farm machinery.

Farm machinery. Ala.

Farm machinery.--To study the various farm machines with a view to increasing their efficiency and determining their adaptability. Mich.

A survey of farm machinery conditions in Arkansas, including types of machinery used. Ark.

Experimental methods and machinery investigations. Iowa.

Standardization of farm machinery. Iowa.

Testing of farm implements. Nebr.

Power machinery.--To study the operation and cost, efficiency, and adaptability of stationary engines, tractors, and accessories. Mich.

A study of the thermal efficiency and the mechanical reliability of the Hvid engine. N.Y. Cornell.

Investigations to determine the draft of various farm implements and the cost of different operations with them.--To determine the draft of various tillage and other farm implements, the effect of different soil types on draft and the effect of the different treatments of soils on the draft of various implements. Also to determine the cost of different operations; the draft of a single disk per foot of width; effect of single and of double disking before plowing. Mo.

Draft of farm implements. Farm power. Mont.

Tractor farming. Mont.

Tractor tests. Nebr.

Use of tractors. Iowa.

Farm tractor survey. W.Va.

Farm machinery. (Cont.)

Economic study of farm tractors. Mont.

Investigations of farm tractors. Minn.

Farm motor trucks in New York State. A study of the cost of operating and uses made of farm trucks on 667 New York farms. N.Y. Cornell.

Development of a traction dynamometer for testing of heavy draft implements, and the perfection of integrating devices for studying the records. N.Y. Cornell.

A study to determine the fundamental factors influencing traction of wheel tractors. Ala.

A study of the factors influencing traction of wheel tractors. Ala.

The determination of the slippage of various types of wheel equipment. Ind.

Miscellaneous tests of tractors and farm machinery. (Davis Substation) Calif.

Effect of kerosene as a fuel upon lubrication of tractor motors. Wis.

Plow draft investigations. Nebr.

Power required for plowing.--To investigate the conditions under which animal power or mechanical power is the most economical. (Davis Substation) Calif.

The draft of wagons. Mo.

A study of machinery necessary to space cotton with acid-delinted seed to save cost of chopping. Ark.

A study of limestone spreaders. Iowa.

Limestone and fertilizer spreaders. Iowa.

Grain grading and cleaning machinery. Iowa.

Farm power.

The effect of the size of the farm unit and combination of enterprises on power requirements. Ill.

The factors determining the efficiency in the use of farm power. Ill.

The extent to which different types of power are used. Ill.

Farm power. (Cont.)

The extent to which one type of power supplements or displaces other kinds of power. Ill.

The relative costs per unit of work done in using different types and units of power. Ill.

Comparative costs when using different sized units of power. Ill.

Comparative costs of different kinds of power when used in farm operations. Ill.

The availability of electric power on the farm. Wis.

Hydroelectric farm plants. Minn.

Wind power: Tests of power mills. Iowa.

Wind power electric lighting plants. Minn.

Farm water supply, sewage disposal, and sanitation.

Masonry water tanks. Iowa.

Sewage disposal. Mont.

Farm sewage disposal. Minn.

An investigation of sanitary conditions on farms and experiments to determine the best types of sanitary equipment.--To determine the actual sanitary conditions as they exist on typical farms, and the economy and efficiency of different kinds of sanitary equipment. Mo.

Investigation of the biology of sewage disposal.--To find out how sewage may be disposed of with a reduced amount of water and end product containing the waste materials in a commercial form. N.J.

Sewage disposal for isolated homes by means of the septic tank. Ill.

Sewage disposal.--To study the relation of design of sewage disposal systems to successful operation. Mich.

A study of the effectiveness of various dosing methods in subsurface absorption tile receiving the effluent from small domestic tanks. N.Y. Cornell.

A study of the relation of tank design to the accumulation of sludge and scum and the discharge of suspended solids in the effluent, in small domestic septic tanks. N.Y. Cornell.

Irrigation.

Irrigation investigations. Mont.

Irrigation investigations with field crops. Demonstration of measuring devices. (Davis Substation) Calif.

Measurement of water as applied to irrigation. Colo.

Venturi flume: Its perfection and calibration for the measurement of water flowing in open channels. Colo.

Study of conditions affecting operation and accuracy of types of current meters for determining water velocity in open channels. Colo.

Irrigation investigations.--To determine the feasibility of irrigation when used in a comparatively small way supplementary to the non-irrigated farm. (Sandpoint Substation) Idaho.

Investigation of the practicability of irrigating certain comparatively level portions of farms in the semi-arid regions. Idaho.

Feasibility surveys. Surveys of proposed irrigation and proposed drainage projects to determine their feasibility agriculturally. Oreg.

Irrigation of vineyards. (Davis Substation) Calif.

Irrigation practice at Greenville - beets, potatoes, oats, and alfalfa. Utah.

Irrigation experiments. Investigations to determine best length and width of borders for "border irrigation". (In cooperation with the Office of Western Irrigation Agriculture, U.S.D.A.) (Hermiston Substation) Oreg.

Experiments in the distribution of water and improvement of irrigation practices. Strip border method, kind of soil, width and length of borders, preparation, and head. Oreg.

Pump irrigation. Cost and acreage that can be irrigated. Nebr.

An investigation of irrigation pumping machinery. Ariz.

Cost of pumping irrigation water. Laboratory test. Mont.

Pumping for irrigation and canal improvement. Investigations at Malone, Lund, Bloomington, and Cedar City. Utah.

Irrigating waters and soils. A study of the irrigating waters and soils of the State. Ariz.

Water supplies and irrigation in Cochise County. Ariz.

Irrigation. (Cont.)

Survey of composition of irrigation waters. Utah.

Ground water development. An investigation of the valleys of the State and to map the same to show where artesian water is available for irrigation and for culinary purposes. The pressure of the water, the flow of the wells, and the nature of the supply reservoir is studied for all the artesian well districts of the State. Utah.

Ground water studies in the Mesilla Valley, New Mexico.--To determine the cause of the rise of the ground water, rate of rise, and approximate damage done. (In cooperation with the Office of Public Roads and Rural Engineering, U.S.D.A.) N.Mex.

Ground water studies in the Socorro Valley and Upper Rio Grande Valley, New Mexico. Preliminary investigation for the purpose of determining the source of seepage water, location of drains, size of drains, and assistance towards the organization of drainage districts. (In cooperation with the Office of Public Roads and Rural Engineering, U.S.D.A.) N.Mex.

Ground water investigations. Principles of ground water recharge, movement, and escape or use, especially escape through transpiration. Ariz.

Ashley Valley studies: (a) Gross duty of water studies, (b) net duty of water studies, (c) preparation of land ownership map showing location of canals and laterals. Utah.

Amount of water to apply. (Size of irrigation). Utah.

Duty of water. Mont.

Duty of water investigations. Studies as to duty of water for different soils and crops on the main irrigated sections of Oregon. Oreg.

Irrigation experiments. Duty of water for major crops with varying depths of application and applications at different intervals. (In cooperation with the Office of Western Irrigation Agriculture, U.S.D.A.) (Hermiston Substation) Oreg.

Duty of water. Amount of irrigation water for best results with wheat, oats, barley, peas, alfalfa, sunflowers, and other less important crops. (Burns Substation) Oreg.

Duty of water studies in southern Nevada. A study of the economical use upon special crops and on suitable soils of small heads of water from artesian wells or pumped from underground supplies; together with certain engineering data on the cost of pumping, on desirable cement constructions, and on methods and cost of well drilling. Location: Las Vegas Valley and Muddy Valley, a region adjacent to the proposed Boulder Canyon dam. (In cooperation with the Bureau of Public Roads, U.S.D.A.) Nev.

Evaporation and duty of water. Ariz.

Irrigation. (Cont.)

Evaporation experiments. Colo.

Seepage in the Gallatin Valley. Study of underground water levels. Mont.

South Platte seepage investigation. Colo.

Irrigation institutions. Utah.

The relation of colonization to the success of irrigation development and the solvency of irrigation districts. Calif.

Materials of construction.

Concrete construction for farm building purposes. Iowa.

Effect of alkali on Portland cement. Mont.

Preservative treatment of greenhouse bench boards. Iowa.

Preservation of farm timbers. Ala.

Effect of structure, time of cutting, and methods of seasoning of white cedar on the penetration of preservatives. Minn.

Lasting qualities of western red cedar shingles nailed with different kinds and number of nails. Pa.

An investigation of fence posts. Iowa.

Comparison of fence posts. Minn.

Investigation of the relative durability of fence post timbers. Ohio.

A study of the methods of prolonging the service of wood fence posts. Mo.

Preservative treatment of fence posts. Iowa., Minn.

Preservative treatments of home-grown posts. (Northwest Experiment Farm, Crookston) Minn.

Fence post treatment; with various chemicals, and charring. Mont.

Periods required to secure penetration of creosote oil in fence posts of common species of wood when treated by the hot-bath and cold-bath method. N.Y. Cornell.

Relative durability of creosoted fence posts treated by: (a) Brushing, (b) dipping, (c) the open-tank method of creosoting, and set in an experimental line in one of the fences bounding a university woodlot. N.Y. Cornell.

Materials of construction. (Cont.)

Prepared roofing. Iowa.

Screen wire durability tests. (In cooperation with the Bureau of Entomology, U.S.D.A.) Wyo.

Coefficient of heat transmission in commercial wall boards. Colo.

Shingle experiment. Pa.

Preservative treatment of shingles. Iowa.

Road materials of Colorado. Colo.

Miscellaneous.

Terracing layouts in Jennings County, Ind.: (a) To devise practical methods for the prevention of soil washing by means of terraces, (b) to establish the relation between the ground slope and the frequency of the terraces, and (c) to find the practical limits for the fall of a terrace. Ind.

Terracing.--To determine the effect of grade and its relation to soil types. Ala.

The harvesting and storage of ice. Iowa.

Miscellaneous engineering observations. Mont.

RURAL ECONOMICS.

Cost of production and accounting.

Farm cost survey. (In cooperation with the U. S. Department of Agriculture) Wis.

Farm cost accounts. W.Va.

Complete cost accounts on New York farm. N.Y. Cornell.

Cost of production. Wash.

Cost of producing farm products. Nebr.

Cost of production of farm products. N.J.

Cost of production studies. Oreg.

Cost of production studies. Detailed cost accounting on 30 farms each in Marshall County and Shelby County. Iowa.

Cost of production and accounting. (Cont.)

To determine the cost of production of various crops. N.Dak.

Cost of producing farm products under farm conditions. Mo.

Cost studies in farm management. Vt.

Farm organization and cost of production. Statistical route studies. Kans.

Investigation of farm organization, including cost of production studies in northern Idaho. Idaho.

Investigation of farm organization, including cost of production studies in irrigated sections of southern Idaho. Idaho.

A study of the cost of producing farm products on representative farms in central and western Kentucky. Ky.

Cost accounting investigations on Minnesota farm. (In cooperation with the U. S. Department of Agriculture) Minn.

Cost accounting investigations on Montana farms. Mont.

To determine factors and quantitative formulae so that the approximate cost of various commodities can be determined at harvest time. N.Dak.

To determine the cost of certain crops from the standpoint of man and horse labor expended. (Caldwell Substation) Idaho.

Cost of production studies. Survey cost studies on corn, oats, and wheat. Iowa.

Cost of producing alfalfa, Malheur Co. Oreg.

Cost of potato production. N.J.

A study of the cost of producing tobacco in Kentucky. (In cooperation with the U. S. Department of Agriculture) Ky.

Cost of producing wheat on dry farms of Columbia Basin. (In cooperation with the U. S. Department of Agriculture) Oreg.

Cost of producing fruits. Minn.

Cost of operating cooperative fruit packing houses. N.Y. Cornell.

Cost of tomato production. N.J.

Dressed beef record. Cost of production. (Union Substation) Oreg.

Cost of production and accounting. (Cont.)

Cost of production of beef cattle. Ark.

Cost of producing beef in Missouri. Mo.

Cost of maintaining a breeding herd of beef cattle in barn and on pasture. Miss.

Cost of fattening cattle and the relation of the enterprise to the farm business. (In cooperation with the U. S. Department of Agriculture.) Nebr.

Cost of raising pure-bred cattle. Complete records on the growing of pure-bred heifers to breeding age. Oreg.

Cost of growing dairy cows. Iowa.

Cost of production of dairy stock. Ark.

Cost of production studies. Cost of milk production. Iowa.

Cost of milk production on 550 farms. N.Y. Cornell.

Cost accounting, to determine the economic factors underlying successful dairying and to secure accurate data on the cost of milk production. Ill.

Record of the station herd:--To ascertain the food cost of milk production, the cost of butter fat, and the dry and digestible matter required to produce a definite amount of milk and butter fat. Mass.

Records of production, cost of feeding and cost of milk production in tests of advanced registry of dairy cows.--To secure records of production of registered dairy cows in Oklahoma; to secure feed records and methods of feeding dairy cows when under official test; to determine the cost of feeding test cows in Oklahoma; and to determine cost of production of milk in tests of advanced registry; and the advantages of advanced registry to owners or breeders of dairy cows. Okla.

Cost of milk from forced v. average dairy condition cows.--To determine the cost of getting cows on the advanced register of their respective breeds. Md.

A study of the cost of producing milk in Idaho. Idaho.

Cost of milk production in Nebraska. (In cooperation with the Dairy Division, U.S.D.A.) Nebr.

Cost accounting. The cost of milk production on Wisconsin Farms. Wis.

Cost of production of milk and butter fat. Ark.

Cost of production and accounting. (Cont.)

Investigations into the cost of producing whole milk and butter fat on California dairies. Calif.

Cost of producing milk and butter fat on 120 farms in Lower Willamette Valley. Oreg.

A study of the relation between butter fat prices and feed costs. Ill.

A study of the cost of operation in the college creamery, in handling milk and in the making of ice cream and butter. Conn. Storrs.

Cost of pasteurization. Iowa.

Cost of production studies. Cost of producing hogs. Iowa.

Cost of producing hogs. S.C.

Hog experiment.--To determine the cost of growing hogs for market under average farm conditions in this district. (Edgeley Substation) N.Dak.

Feed cost of growing hogs from time of birth to period when they can be turned on grazing crops. Ia.

To learn cost, including feed and labor, of raising pigs to weaning time or ten weeks old. N.C.

Cost of fitting show barrows. Oreg.

Study of production cost.--To determine the labor cost in man hours and in hours, of producing crops to be grazed down by hogs. Ia.

The cost of growing chicks. Mo.

To determine the cost of production of mature pullets for egg production. Mont.

Cost of pullets' v. hens' eggs. (Northwest Experiment Station, Crookston) Minn.

Cost of producing maple sirup and sugar in New York State. N.Y. Cornell.

Cost of farm power. N.J.

The cost of horse power, including feed, shoeing, harness depreciation and repair, bedding, and labor for feeding and care. Oreg.

Farm labor.

Labor requirements for various crops. Ark.

Farm labor. (Cont.)

Utilization of labor on the farm. A detailed study of the efficiency of growing corn on fields of various sizes. Mo.

Labor income study of farms about the town of Newfane, Niagara County, for the year. N.Y. Cornell.

Farm organization and management.

Farm organization. Utah., Wash.

Miscellaneous farm management studies. Utah.

Miscellaneous farm management observations. Mont.

Study of farm organization and labor income. Miss.

Applied farm organization. Plans prepared and installed for 40 farms. Oreg.

Farm organization. Records on about 500 farms. Oreg.

Farm organization and cost of production. Statistical route studies. Kans.

Investigation of farm organization, including cost of production studies in northern Idaho. Idaho.

To determine the most economic size of farm for the community. N.Dak.

A study of methods of farm organization and practices on live stock farms. Minn.

A study of the physical organization of farms. Minn.

To determine various efficiency factors so that the most economic production can be brought about. N.Dak.

Detailed farm accounting investigations. A study of the organization and operation of farms, with the view of finding ways and means of securing greater economy in the production of farm products. Ill.

Study of farm management, farm accounting, and farm practices on farms practicing general farming. Mich.

Study of farm management, farm accounting, and farm practices on farms where their major business is feeding beef cattle and sheep. Mich.

Study of farm management, farm accounting, and farm practices on farms where their major business is potato farming. Mich.

Types of farming. Utah.

Farm organization and management. (Cont.)

A test of grain v. live stock farming. Ohio.

A comparison of a live stock system with a grain system of farming. S. Dak.

To determine the relative profitableness of different types of farming under similar conditions. N.Dak.

Farm management.--To place the unused portion of the farm in condition to produce crops for feed or sale. (Caldwell Substation) Idaho.

Planning the Iowa farmstead. The arrangement of the buildings for economy of space and convenience, the grouping of certain buildings because of their common or similar use, and the arrangement of trees, shrubs, vines, and flowers to afford comfort and attractiveness to the farm home. Iowa.

Boys' farm management project. Miss.

Study of Indian agriculture. Agricultural practices that have made the native Indian farmers successful under conditions that usually mean failure for white men. Ariz.

An agricultural survey: (a) To obtain a knowledge of the farm management practice followed in a typical blue grass area where agriculture is the leading industry, (b) to determine the important factors which influence the profitableness of farming in this region, (c) to suggest ways of improving the organization and management of the less successful farms of the region, and (d) to compare the relative merits of a one-year survey with one taken two consecutive years. W.Va.

Investigation of farm organization, including cost of production studies in irrigated sections of southern Idaho. Idaho.

Farm organization and management. Farm management survey in Warren County, Iowa. Iowa.

Farm organization and management. Farm management survey in Black Hawk, Grundy, and Tama Counties, Iowa. Iowa.

Farm organization studies in the Gallatin Valley. Mont.

Farm organization studies on the plains area of northern Montana. Mont.

Farm management survey of Canadian and other counties in Oklahoma. Okla.

A study of farm management, farm accounting, and farm practices, on dairy farms in Wayne and Monticue Counties. Mich.

An economic study of the organization of 550 dairy farms in New York. N.Y. Cornell.

Record of farm operations - college farm. Pa.

Record of farm operations. Mitchell farms. Pa.

Notes on the management of the Thompson farm. Pa.

Farmers' cooperative organizations.

A study of farmers' organizations in Indiana.--To find out the scope and extent of organizations among farmers, methods of doing business, their profitability, and their strong and weak points. Ind.

The formation and activities of farmers' and ranchmens' organizations and mutual associations. Tex.

The collection and analysis of statistics of cooperative organizations. Minn.

Investigations of cooperative marketing and purchasing among farmers in Kentucky. Ky.

Economic investigations of the grain trade of Iowa. Economic investigation of farmers' elevators in Iowa. Iowa.

Economic investigation of cooperative live stock shipping associations of Iowa. Iowa.

A determination of the efficiency obtained in the operation of Iowa cooperative creameries. Iowa.

Land settlement.

Methods employed by private agencies in land settlement. Minn.

Study of the progress of settlers in cut-over districts of Wisconsin. (In cooperation with the U.S. Department of Agriculture) Wis.

Land tenure.

Farm tenancy. Iowa.

Farm tenancy and ownership. Wis.

Investigations of tenancy, agricultural credit, and other land problems. Kans.

Land tenure.--To determine costs, investments, labor income, social phases, etc. (In cooperation with the U. S. Department of Agriculture) Nebr.

Special aspects of farm tenancy in Iowa. (In cooperation with the Office of Farm Management, U.S.D.A.) Iowa.

A study of farm tenancy in North Carolina in an attempt to understand causes and to propose remedies. N.C.

Land tenure. (Cont.)

A study of farm tenancy in Tennessee.--To determine the economic and social effects of tenancy; the relationship of tenancy to farm ownership, and the steps taken by owners in arriving at ownership; and measures for the improvement of tenant conditions. Tenn.

Study of lease contracts in Arkansas, and the share between landlord and tenant. Ark.

Leasing of California farm lands. Calif.

Leasing methods and financial returns on rented dairy farms in New York. N.Y. Cornell.

Study of farm leases in Wisconsin. Wis.

A study of the distribution of land ownership and the causes and significance of tenancy in the Blue Grass region of Kentucky. (In cooperation with the Office of Farm Management, U.S.D.A.) Ky.

Helping landless men own farms or a comparison of private enterprise and public aid and direction in the creation of rural communities. Calif.

Land values.

A study of land values in Kentucky. (In cooperation with the Office of Farm Management, U.S.D.A.) Ky.

Methods of land valuation with special reference to Minnesota. Minn.

The agricultural and market value of Missouri farm lands. Mo.

A study of land value in Tennessee.--To determine the relation of various economic factors, as good roads, distance to market, periods of depression, etc. on land values; land turnover; and prices of farm products in relation to land prices. Tenn.

Marketing.

Market business practice, Minn.

The survey of marketing practices. Colo.

Prices of farm products. N.Y. Cornell.

Marketing.--To secure data on cost and methods of marketing farm products. N.Dak.

Local balance of trade in farm crops. Mass.

Marketing. (Cont.)

Survey of marketing needs in isolated communities.--To determine whether local markets cannot be made adequate for consumption of local production. Mecklenburg, Granville, Cumberland, and other counties. N.C.

A study of factors affecting marketing of farm products in Arkansas. Ark.

Marketing of Wisconsin farm products. Studies of the marketing of cheese, butter, potatoes, milk, live stock, and canned peas completed. Investigations now being conducted on the marketing of wool and cherries. Wis.

Cotton marketing and warehousing survey. Study of the economic soundness and relative advantages of all towns in the State as marketing and storage points; analysis of cotton production and point of manufacture; analysis of cotton manufacture in reference to point of production. N.C.

Investigation of the marketing of blue grass and orchard grass seed. Ky.

Hay marketing. N.Y. Cornell.

Potato marketing. N.Y. Cornell.

Investigations of the forces determining the prices of farm products. The price of potatoes in the twin cities. Minn.

Marketing Nebraska potatoes. Nebr.

Methods and costs of distribution of tobacco, onions, and potatoes. Mass.

Wheat prices. N.Y. Cornell.

Wheat marketing investigations. Studies of farm storage factors in the marketing of wheat. Kans.

Marketing Utah fruits. Utah.

Investigations of the method of marketing Kentucky strawberries. Ky.

Investigations of methods and costs of marketing live stock. Ky.

Local costs of marketing live stock. Minn.

Milk marketing. N.Y. Cornell.

An intensive study of the marketing of milk in the Chicago District. Ill.

Marketing of Minnesota butter in New York City. Minn.

Marketing of wool under old and new marketing methods. Wis.

Marketing. (Cont.)

Cost of marketing eggs, taking into consideration cost of production, including overhead charges, container, transportation, and markets. (Coastal Plain Substation, Willard) N.C.

Investigations of cooperative marketing and purchasing among farmers in Kentucky. Ky.

Crop estimates in North Carolina. A study of crop acreage, yields, and value in relation to supply and demand. N.C.

Rural credit.

Farm credit. N.Y. Cornell.

Investigations of tenancy, agricultural credit, and other land problems. Kans.

A study of rural credits in North Carolina. N.C.

Study of farm credit in Wisconsin. Wis.

Rural store credits. N.Y. Cornell.

Rural sociology.

Curriculum organization in the rural high school. N.Y. Cornell.

An analysis of the principal's job in the rural high school. N.Y. Cornell.

The technique of the consolidation school survey. N.Y. Cornell.

Problems of rural school attendance in a New York supervisory district. N.Y. Cornell.

The rural school report as one method of leadership. N.Y. Cornell.

Principles of rural school leadership. N.Y. Cornell.

An analysis of the principles governing rural school organization and administration in local, intermediate, and State units. N.Y. Cornell.

Analyses of principles underlying the organization of practice and apprentice teaching. N.Y. Cornell.

Community activities of teachers of agriculture in relation to teaching. N.Y. Cornell.

Rural sociology. (Cont.)

Evaluation of content in arithmetic in the rural elementary school in one supervisory district in New York State. N.Y. Cornell.

Evaluation of content in spelling in the rural elementary school in one supervisory district in New York State. N.Y. Cornell.

The relation of speed and accuracy in mental functions. N.Y. Cornell.

Cost of family living on the Missouri farm. Mo.

Ranch economic and social problems. Tex.

Country life. Study of rural primary groups. (In cooperation with the U.S. Department of Agriculture) Wis.

Country life. A study of towns and villages as social and economic service stations. (In cooperation with the U. S. Department of Agriculture) Wis.

Rural social survey of the west half of Lincoln Township, or Congressional Township 76 N., R. 24, Warren County. Iowa.

A study of rural social organization.--To discover the existing status in New York of rural community organization, particularly with regard to the behavior of rural communities and the natural process of social organization which has gone on in some of the more progressive rural communities of the State, with a view to making inductions as to the forces and processes of rural community organization. N.Y. Cornell.

Activities of other States and the United States in promoting rural progress. Tex.

Miscellaneous.

Economic studies in price, volume of production, and purchasing power of farm products. Nebr.

Relation of industrial conditions to agricultural conditions. N.Y. Cornell.

An agricultural economic survey of crop farming in the Blackland belt of Texas. Tex.

A study of retail costs of farm supplies and their relation to farm profits. Ark.

Silo filling studies. A study of the factors affecting economy in filling silos. Ill.

ADMINISTRATION, ETC.

Administration, miscellaneous - general.

University farm campus. Minn.

Administration and direction of the work of the office, laboratory, and field. N. Dak.

Station administration. General conduct of station affairs; preparation, editing, and issuance of station publications. Vt.

Administration. Work in connection with Adams Project IV. Vt.

Adams Substation, Lind, Washington. Wash.

Printing. Wash.

Reserve. Wash.

Salaries. Wash.

State chemist's work. Wash.

Travel. Wash.

Washington Irrigation Substation, at Prosser. Wash.

Waterville Substation. (In cooperation with the U.S. Department of Agriculture) Wash.

Director's Office. W.Va.

General maintenance. W.Va.

Publications. W.Va.

Station library. W.Va.

Control and inspection projects; also extension projects.

Feeding stuffs control. Ky.

Feeding stuffs inspection. Me., Mich.

Inspection of commercial feedstuffs. N.H.

Control and inspection projects; also extension projects. (Cont.)

Inspection of feeding stuffs. N.Y. State.

Enforcement of the provisions of the pure feed law. Tex.

Fertilizer control. Ky., Mo.

Fertilizer inspection. Me., Mich.

Inspection of commercial fertilizers. N.H., N.Y. State.

State fertilizer control, feed control, and miscellaneous analytical work.
Tex.

Food and drug inspection. Me.

Inspection of imported nursery and florists' stock. Ky.

Nursery and orchard inspection. Ky.

Nursery and orchard and nursery and greenhouse stock inspection. Nebr.

Seed testing and inspection. Ky.

Seed inspection. Md.

Seed testing laboratory. Mo.

Seed tests. N.H.

Creamer and tester's license. Ky.

Creamery glassware inspection. Me.

Testing Babcock glassware. N.Y. State.

Accuracy of Babcock test glassware. N.Y. State.

Fungicide and insecticide inspection. Me.

Inspection of insecticides and fungicides. N.Y. State.

State regulatory work (veterinary). Minn.

White diarrhea work. N.H.

Advanced registry work. N.H.

CHEMICAL WORK. - ROUTINE AND MISCELLANEOUS

Chemical analyses of soil survey samples. Idaho.

Analysis of miscellaneous materials. Ky.

Analyses and examinations for State Board of Health. Ky.

Complete analyses of 20 to 30 samples of milk each month for the Department of Biology in connection with cattle breeding work. Me.

Miscellaneous analyses. (Water analyses, chemical and baking tests with flour, etc.) Minn.

Chemical service. Routine chemical work. Mo.

Feed analyses for division of animal industry. Minn.

Analyses and tests of flour - for State Board of Control. Minn.

Service work by the chemical department. N.H.

Analyses of miscellaneous samples - chemistry. Pa.

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